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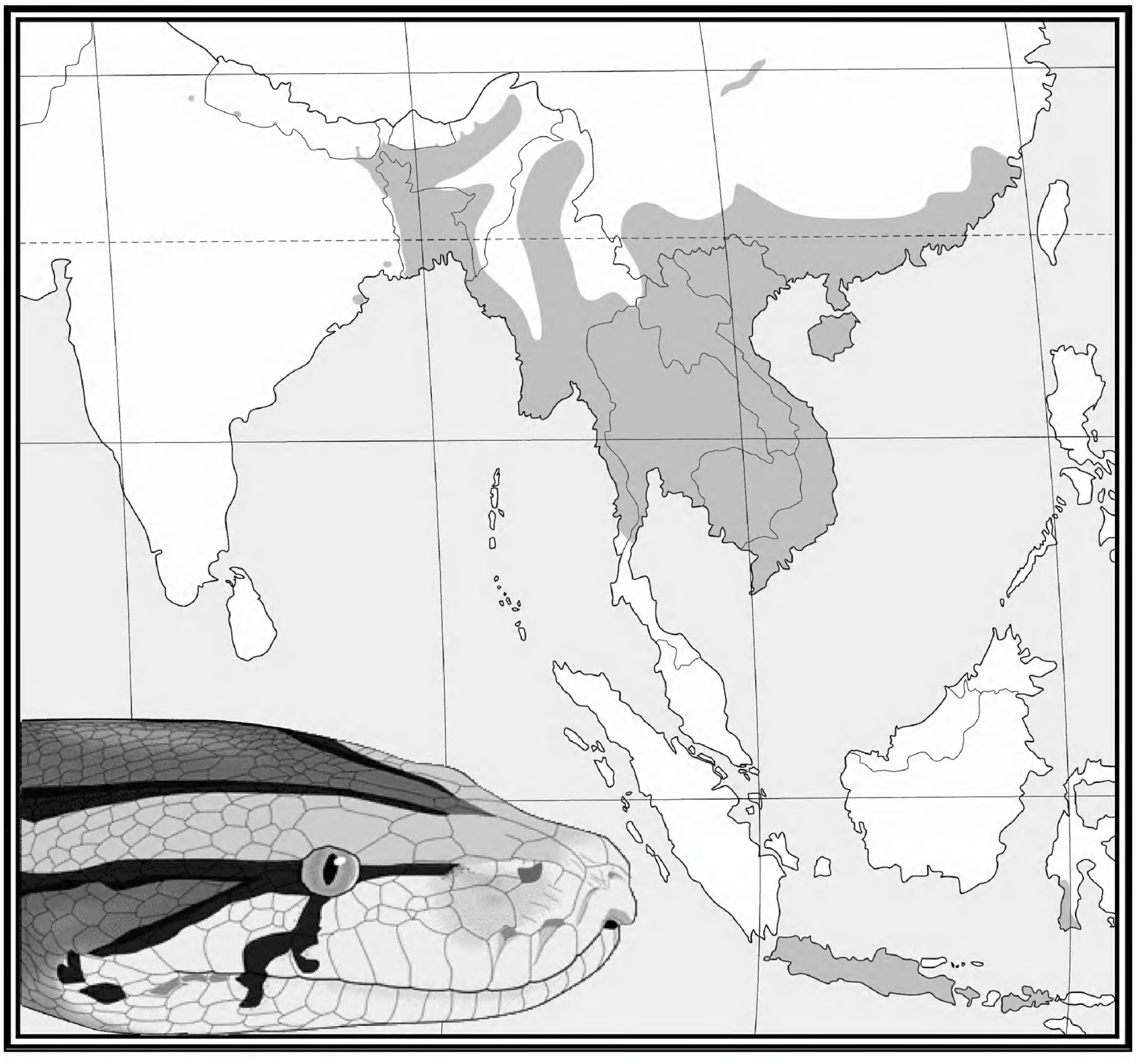

BULLETIN OF THE CHICAGO HERPETOLOGICAL SOCIETY
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The Distribution of the Burmese Python, *Python molurus bivittatus* . . . . . David G. Barker and Tracy M. Barker 33

A Note on Site Fidelity for Ecdysis in the Northern Brown Snake, *Storeria dekayi dekayi* . . . . . Brian S. Gray 39

Book Review: *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding, Sixth Edition* by the Committee on Standard English and Scientific Names (Brian I. Crother, Committee Chair) . . . . . James N. Stuart 42

Unofficial Minutes of the CHS Board Meeting, February 15, 2008 44

The Tympanum: Comments on a Flawed Herpetological Paper and an Improper and Damaging News Release from a Government Agency . . . . . David G. Barker and Tracy M. Barker 45

What You Missed at the February CHS Meeting . . . . . John Archer 48

Herpetology 2008 51

Advertisements 54

News and Announcements: 2008 CHS Grant Recipients 55

Cover: Burmese python, *Python molurus bivittatus*. Drawing by David G. Barker; range map by David G. Barker and Tracy M. Barker.

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The Distribution of the Burmese Python, *Python molurus bivittatus*

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The Burmese python was first formally identified as a distinct species of python, *Python bivittatus*, by Heinrich Kuhl in 1820. Kuhl based his description on illustrations published in Albertus Seba's *Thesaurus* in 1735. Shortly thereafter, Kuhl traveled to Java to make a collection of reptiles and amphibians for the Dutch government. Life in the Dutch Indies in the early 19th century was difficult for European naturalists—Kuhl died a few days shy of his 24th birthday. Adler (1989) described him as an "outstanding young naturalist."

The classification of the Burmese python has evolved since its discovery. In 1842, John Edward Gray of the British Museum, recognizing the similarities between the Burmese python and its sister taxon, the Indian python, *Python molurus*, placed *bivittatus* in synonymy with *Python molurus*. However, Werner (1910) resurrected and recognized *Python bivittatus* again as a species. Mertens (1930) identified *bivittatus* as a subspecies of *Python molurus*; this has remained the accepted classification since that time. No type locality was designated for *bivittatus* in the original description; Mertens (1930) restricted the type locality to "Java."

The Burmese python is one of the largest snake species. Even though Burmese pythons have been known to science for nearly two centuries, the taxon is not well represented in museum collections. Collection, preservation and storage are difficult for large reptile specimens and most, if not all, museums have a bias based on very practical considerations against holding large numbers of large species. One of several problems resulting from low numbers of museum specimens becomes apparent when an attempt is made to document and delimit the natural distribution of a large species, particularly a widely distributed species that is found in many countries.

Very few maps illustrating the distribution of *Python molurus bivittatus* have been published. Most appear to be intended only as a general overview of the distribution. To date, the most detailed and correct map of which we are aware is that of O'Shea (1998).

We initially intended to create a locality-dot map, with a dot representing each exact locality where Burmese pythons had been observed or collected. This quickly proved to be impractical, if not impossible. In the central area of the mainland range, including Thailand, Cambodia, Laos and Vietnam, Burmese pythons are well-known, and in some places reported to be or have been common. Even in these areas, we found few specific or exact records. Along the northern periphery of the range and in the Indonesian areas of the range, however, there are only a small number of reported specimens and most localities are identified only generally. In order to create a realistic depiction of the range, we have used river drainages, elevations, plant communities, and obvious routes of dispersal to infer the probable limits of the distribution. In addition to works cited directly in the text, the "Literature Cited" section at the end of this article includes the references on which our map is based.

Habitat of the Burmese Python

The Burmese python, *Python molurus bivittatus*, is predominantly a creature of tropical lowlands, mangrove forest, rainforest, wet grasslands and coastal plains of the Indo-Chinese Peninsula and southeastern China (O'Shea, 1998, 2007; Orlov et al., 2000; Mahendra, 1984; Whitaker and Captain, 2004; Ziegler et al., 2007; Stuart, 1998). These pythons are strongly associated with water, both rivers and lakes, as well as small pools in the forest (Goodyear, 1994; Reitinger, 1978; Pope, 1961; Wall, 1912).

We find few records of Burmese pythons occurring above 1000 m; the vast majority of the habitat and range of the species is below 200 m in elevation. Orlov et al. (2000) report the species occurring to 1200 m on the Tam-Dao Mountain Ridge in Vietnam; we note that several other species in this survey were found much higher, up to 1500 m. In the right circumstances, in the rhododendron and bamboo forests of some protected and temperate drainages, undoubtedly the species can be found at higher elevations. We note that Shah and Tiwari (2004) list the altitudinal range for *P. m. bivittatus* in Nepal to be 100 to 2800 m; however, in the detailed work of Schleich and Kästle (2002), the highest *bivittatus* locality in Nepal is less than 2000 m.

The Primary Distribution of the Burmese Python

The species is found in all provinces of Thailand north of the Isthmus of Kra. All reports state the distribution includes all of Cambodia, Laos and Vietnam.

The western part of the continuous mainland range includes eastern India, Bangladesh and Myanmar. In this area the species appears to follow the drainages of the Ganga and Brahmaputra in Bangladesh and eastern India. In mountainous Myanmar the distribution follows the Irrawaddy River system. Burmese pythons are found along these drainages from their deltas in the south, northward into the smaller drainages that dissect the foothills of the Himalayas and of the Shan Plateau coming down from the Tibetan highlands. Throughout these areas, suitable habitat, and climate exist to elevations of 1000 m. At the far reaches of some of the drainages, pythons may be found at elevations of 1200 m.

The Western Populations

There are three disjunct populations of Burmese pythons located to the west of the known western margin of the continuous range in eastern Bihar, India. Burmese pythons have been observed in Chitwan National Park and Royal Bardia National Park in Nepal, and in Corbett National Park in the state of Uttarakhand, India (O'Shea, 1998, 2007; Whitaker, 2004; Schleich and Kästle, 2002; Khan, 1998). These areas have elevations of 300 to 600 m (Schleich and Kästle, 2002). Evi-

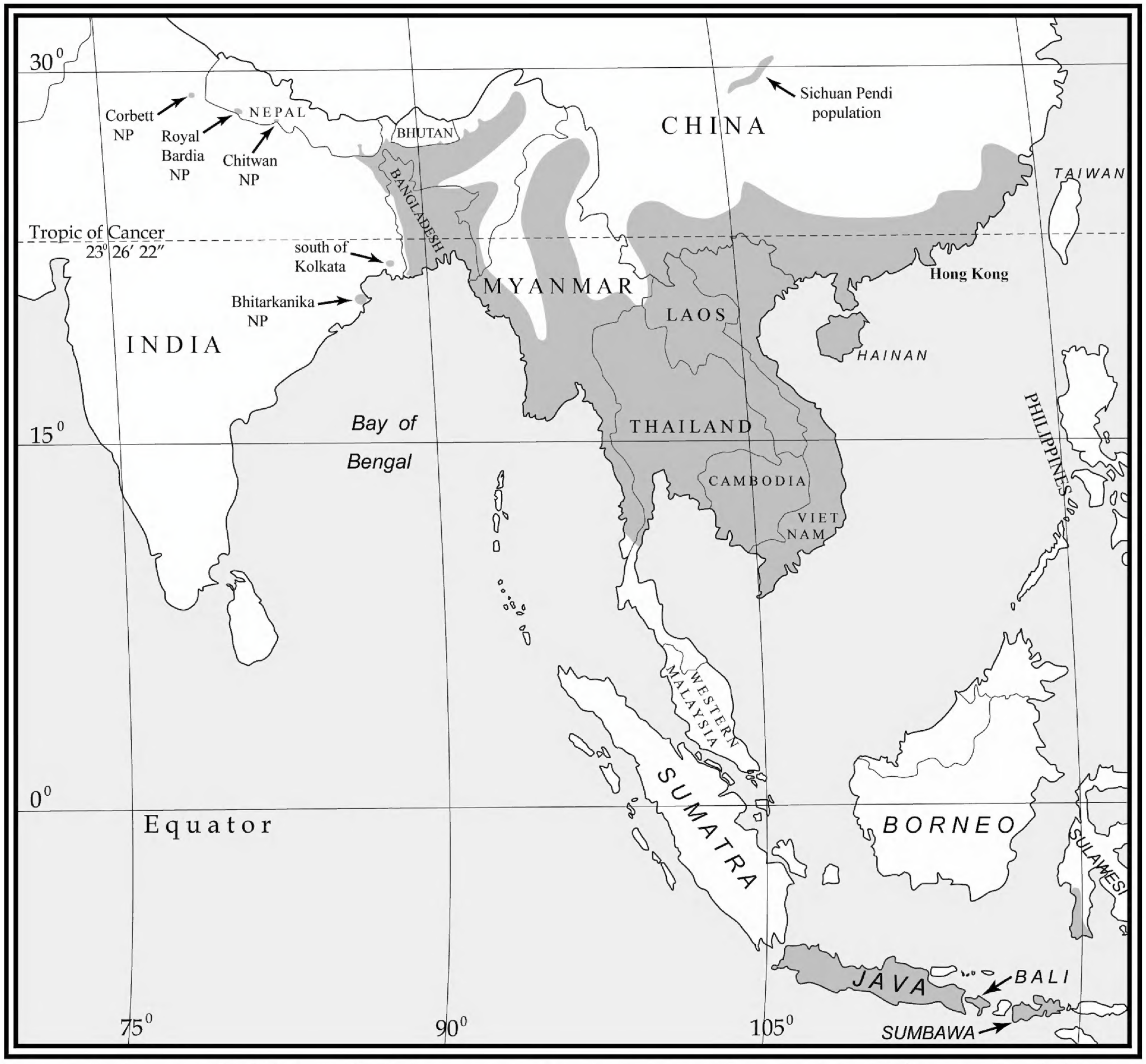

Figure 1. The distribution of the Burmese python, *Python molurus bivittatus*. The shaded region denotes the range of the Burmese python. Isolated populations are denoted with arrows.

dence that these populations are naturally occurring and not due to human transport are provided by the presence at these localities of other Indochinese species such as *Lycodon jara* and *Typhlops diardi* (Khan, 1998; O'Shea, pers. com.).

The existence of these apparently disjunct localities in the foothills of the Himalayas in northern India and along the southern Nepal border allows the interesting possibility that at some time in the past the range of Burmese pythons extended west along the Ganga, then north along the Gandak River to the vicinity of Chitwan, and northwest along the Ghaghara River and its tributaries that drain southwestern Nepal and eastern Uttarakhand. Whitaker (pers. com.) has communicated to us that there is a possibility that unreported localities for Burmese pythons are scattered all along the southern border of Nepal.

Two localities extend the distribution of Burmese pythons west and south along the coast from the area of the mouths of the Ganges. There is a small population of Burmese pythons living on a private estate just to the south of Kolkata, West Bengal (Das, pers. com.). Mark O'Shea (pers. com.) has seen and photographed Burmese pythons in the mangrove swamps of Bhitarkanika National Park, Orissa.

It is interesting to note that in Bangladesh, Eastern India, West Bengal, Orissa, and west along the southern Nepal Border to Uttarakhand, Burmese pythons are sympatric, and in some places syntopic, with Indian pythons, *P. m. molurus*. It is not understood how the two interfertile taxa remain distinct through such a broad area of sympatry; it seems likely that resource partitioning involving prey and microhabitat preferences separates the taxa (O'Shea, 2007), and that this separation allows them to maintain their identities.

Burmese Pythons in China

The species ranges east from northern Vietnam into China. Burmese pythons are found in the coastal plains of Guangxi, Guangdon, and into Fujian to the area of Nanping. The species is well-known on Hainan and Hong Kong (Pope, 1929, 1935; Zhao and Adler, 1993; Murphy and Henderson, 1997; Ji Daming, 2002).

Zhong (1993) reported the presence of Burmese pythons in southern Jianxi Province, based on a single specimen of Burmese python and also a piece of shed skin. At 24°35′N latitude, this area has a general elevation of 600 to 1700 m, but is dissected with the drainages of many streams and small rivers. No information is provided regarding the ecological associations of pythons in the area.

To the east of Myanmar, north of Laos, and northwest of Vietnam lies Yunnan Province. Burmese pythons are reported from this mountainous province, and most authors have included most or all of Yunnan on maps of the distribution of the species. However, we can find record of only one locality, that being Yuanjiang [Yuankiang] (Pope, 1929).

A cursory look at a map shows Yuanjiang in the mountains of southern Yunnan, some approaching 3000 m elevation. However, the city is located in the deep Yuan Jiang drainage, which is the Chinese portion of the Song Koi (Red River) drainage in northern Vietnam. The elevation of the river is about 500 m, and the temperate climate in the deep river valley is in contrast to the severe winter weather in the higher surrounding mountains. According to WeatherReports (http://www.weatherreports.com) the average winter high temperature of Yuanjiang is 78°F (26°C) and the average winter low temperature is 55°F (13°C).

Yunnan is dissected and drained by the Song Koi (Red River), Nu Jiang (Salween), and the Lancang Jiang (Mekong). These three major river systems all are populated with Burmese pythons in their lower reaches; if there are other populations of *P. m. bivittatus* in Yunnan, these rivers undoubtedly provide the routes of dispersal.

The Sichuan Population of Burmese Pythons

In recent years *P. m. bivittatus* has been reported from Sichuan Province, China. We initially were skeptical, but have conceded that the report is reliable. Several recent papers (Rodda et al., 2008; Ji Daming, 2002) have illustrated this range extension with a large northward loop that indicates that the species exists in all of eastern Sichuan, all of Guizou, and parts of Hubei and Hunan. We do not believe this to be the case. We can find no record of the species in those three provinces — they are mountainous, there is no suitable habitat at reasonable elevations, and there are no identifiable migration routes along which the species might have dispersed.

The Sichuan specimens were collected in eastern Sichuan in an area called the Sichuan Pendi, or the Sichuan Basin. This is an isolated depression, a round valley surrounded by mountains. It is an area of temperate, foggy weather, sheltered from winter extremes. It is a refugium for temperate, tropical, and relict species in Sichuan. The Chang Jiang (Yangtze River) passes through the basin, flowing in at the southwest side. It runs along the southern margin, with the downstream exit at the eastern side. The elevation of the river in the Pendi is about 500 m.

We believe that the Sichuan population is an isolated population. We propose that there are two possible ways that these pythons could have reached eastern Sichuan. We believe that the most parsimonious explanation is that that the population was founded by survivors that dispersed or were washed down the Chang Jiang to the Pendi. However, a second possibility exists that the snakes were transported there by humans.

Upstream from the southwest corner of the Pendi, the course of the Chang Jiang turns to the southwest for about 250 km to the vicinity of Dongchuon, Yunnan. In Yunnan the Yangtze changes names again and becomes the Jinsha Jiang. At Dongchuon the course of the river turns west for about 100 km, then loops north up and around Dukou. A distance to the west of Dukou, it cuts to the north through one of the most spectacular river canyons of the world as the elevation rises from 1000 m in northern Yunnan to 5000 m on the Tibetan Highland.

The drainage of the Jinsha Jiang between Dukou and Dongchuon contacts the drainage of the Yuan Jiang. The drainages meet along a ridge between Xiaguan and Kunming. In fact, Burmese pythons are known to occur in the area of Yuanjiang, a small town south of Kunming. The Yuan Jiang and its larger tributaries lie in deep river valleys with temperate conditions. It's possible that pythons in this region could cross into the Jinsha Jiang drainage and from there disperse downstream to the Pendi. Other than the small population in the Pendi, Burmese pythons are unknown from the Jinsha Jiang/Chang Jiang drainage.

The Insular Populations in Indonesia

It is interesting to note that while *P. m. bivittatus* exists in sympatry with the reticulated python, *Python reticulatus*, throughout much of its distribution, Burmese pythons are not known to exist anywhere within the ranges of the three species in the *curtus* complex. The blood python, *Python brongersmai*, is found in southern Thailand south of the Isthmus of Kra, Peninsular Malaysia, eastern Sumatra and islands in the Straits of Malacca; the Sumatran python, *Python curtus*, is found in western and southern Sumatra; and the Borneo python, *Python breitensteini*, occurs throughout Borneo. Based solely on observed distribution, these three species appear to exclude *P. m. bivittatus* from within their ranges.

The Burmese python occurs on Java, where it is uncommon and smaller than mainland forms (Whitten et al., 1996; Tepedelen, pers. com.). It is found in Bali (McKay, 2006). The species is reported from Sumbawa in the western Lesser Sundas archipelago (Haas, 1950; Manthey and Grossman, 1997). A population is reported to exist in southern Sulawesi (Boulenger, 1897; Deraniyagala, 1955; McDiarmid et al., 1999). Lang and Vogel (2005) state that *P. m. bivittatus* on Sulawesi are small, with a maximum size of 2.5 m. In general,

little is known or published regarding this taxon in Indonesia.

Acknowledgments

We thank Kraig Adler, Indraneil Das, Mike Dloogatch, Mark O'Shea, Kamuran Tepedelen, and Romulus Whitaker for information and constructive comments. It is our hope that individuals with experience and knowledge regarding the exact limits of the distribution of Burmese pythons will contribute to correct errors and omissions we may have committed. We welcome all comments and information that serve to improve the map.

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A Note on Site Fidelity for Ecdysis in the Northern Brown Snake, *Storeria dekayi dekayi*

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Information regarding site fidelity in *Storeria dekayi dekayi* is sparse. Ernst and Ernst (2003) note that hibernaculum fidelity occurs in this species. Herein I report instances of site fidelity by three *S. d. dekayi* during periods of ecdysis.

Between May 1998 and July 2007, northern brown snakes in pre-ecdysis were collected from a debris pile in Erie County, Pennsylvania. Specimens were maintained in captivity so that the shed stratum corneum could be obtained and utilized in ongoing research on shed snake skins. Individual snakes were housed in plastic shoeboxes (32.7 × 18.7 × 10.8 cm) with shredded paper as a substrate, and provided with water bowls. After skin-shedding, individuals were released at the point of their capture. Sections (cephalic, midbody and tail) of the sheds that were obtained were prepared and laminated as described in Gray (2005). Measurements, including frontal scale length (FL), frontal scale width (FW), and parietal scale length (PL), were obtained from the shed skin using a stereo microscope and a miniscale (BioQuip Products, Inc., Rancho Dominguez, CA) accurate to 0.1 mm. Twenty-two shed snake skins were obtained.

To determine if any individuals had utilized the debris pile on more than one occasion during the sampling period, I organized the sheds into groups based on similarities in scutellation. For example, sheds with two postoculars on both sides went into one group, while all those with two postoculars on the right side and three on the left went into another group, and so on. Groups were then further divided into smaller groups based on the number and pattern of scales bordering the parietals. In addition, scale anomalies, such as cleft, fused, and/or irregularly shaped scales anywhere along the length of the shed, were used to differentiate or match individuals. After dividing the sheds into groups, each shed in a group was compared to all others in the same group. Comparisons were made by superimposing the two sheds being compared and examining them at 10× magnification with a stereo microscope. It was assumed that the relative size, shape, and arrangement of scales from sheds, as well as the sex and size measurements (snout-vent length and tail length) of the actual snake could be used to

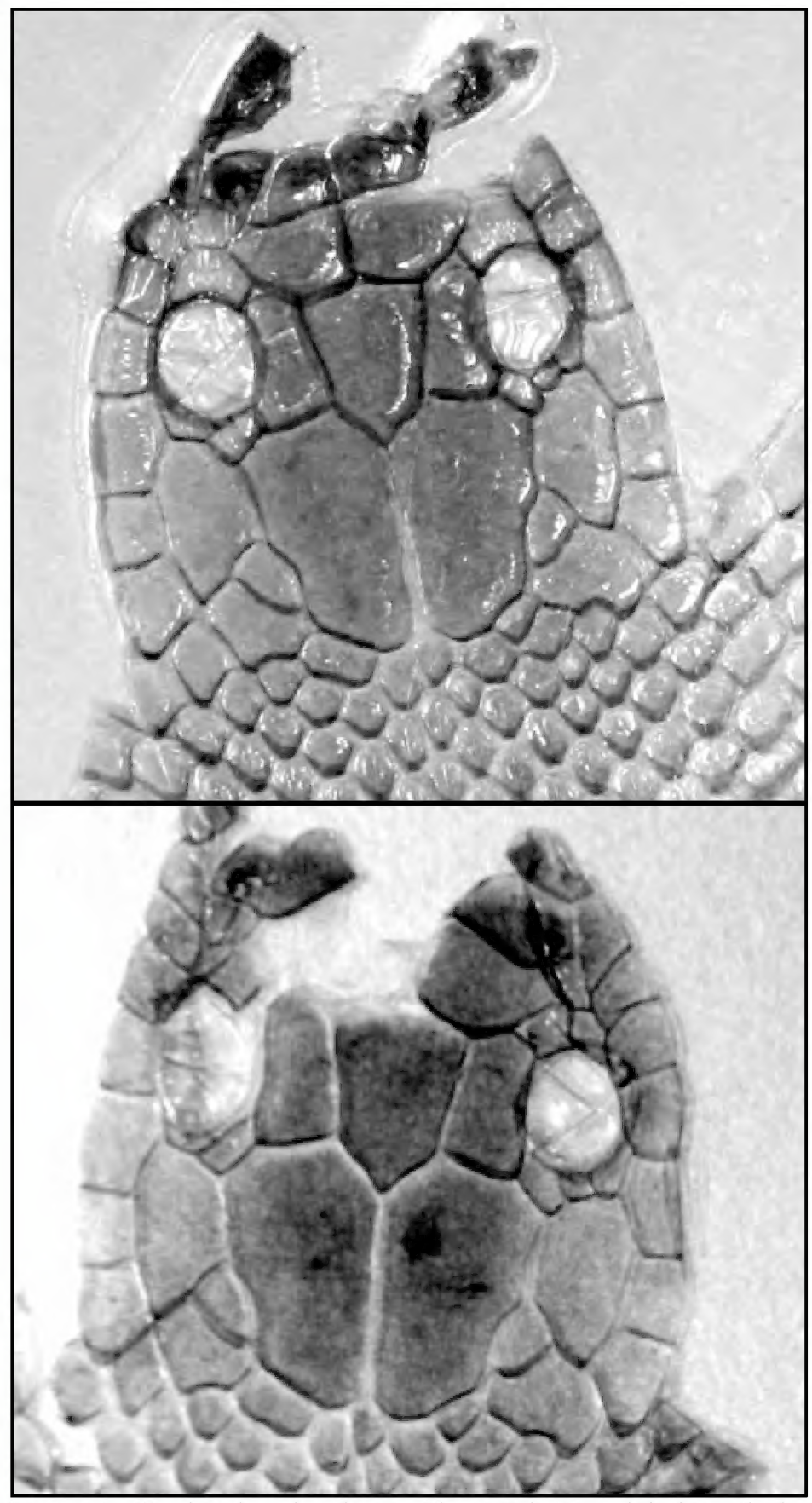

Figure 1. Head scales of snake A. The top photograph is from shed BG 344, obtained 28 May 2006; the bottom is shed BG 353, obtained 17 June 2006.

Table 1. Capture data for three *Storeria d. dekayi*, recaptured under the same piece of wooden paneling. Data provided include the date each specimen was found in pre-ecdysis, the date each individual shed, the catalog numbers of the resulting sheds, and the number of days between captures.

Snake	Sex	# of days between captures	First capture			Second capture		
			Pre-ecdysis	Shed	Catalog #	Pre-ecdysis	Shed	Catalog #
A	♀	19	24 May 2006	28 May 2006	BG 344	12 June 2006	17 June 2006	BG 353
B	♂	341	4 June 2006	7 June 2006	BG 348	11 May 2007	16 May 2007	BG 384
C	♂	347	7 June 2006	10 June 2006	BG 350	20 May 2007	22 May 2007	BG 389

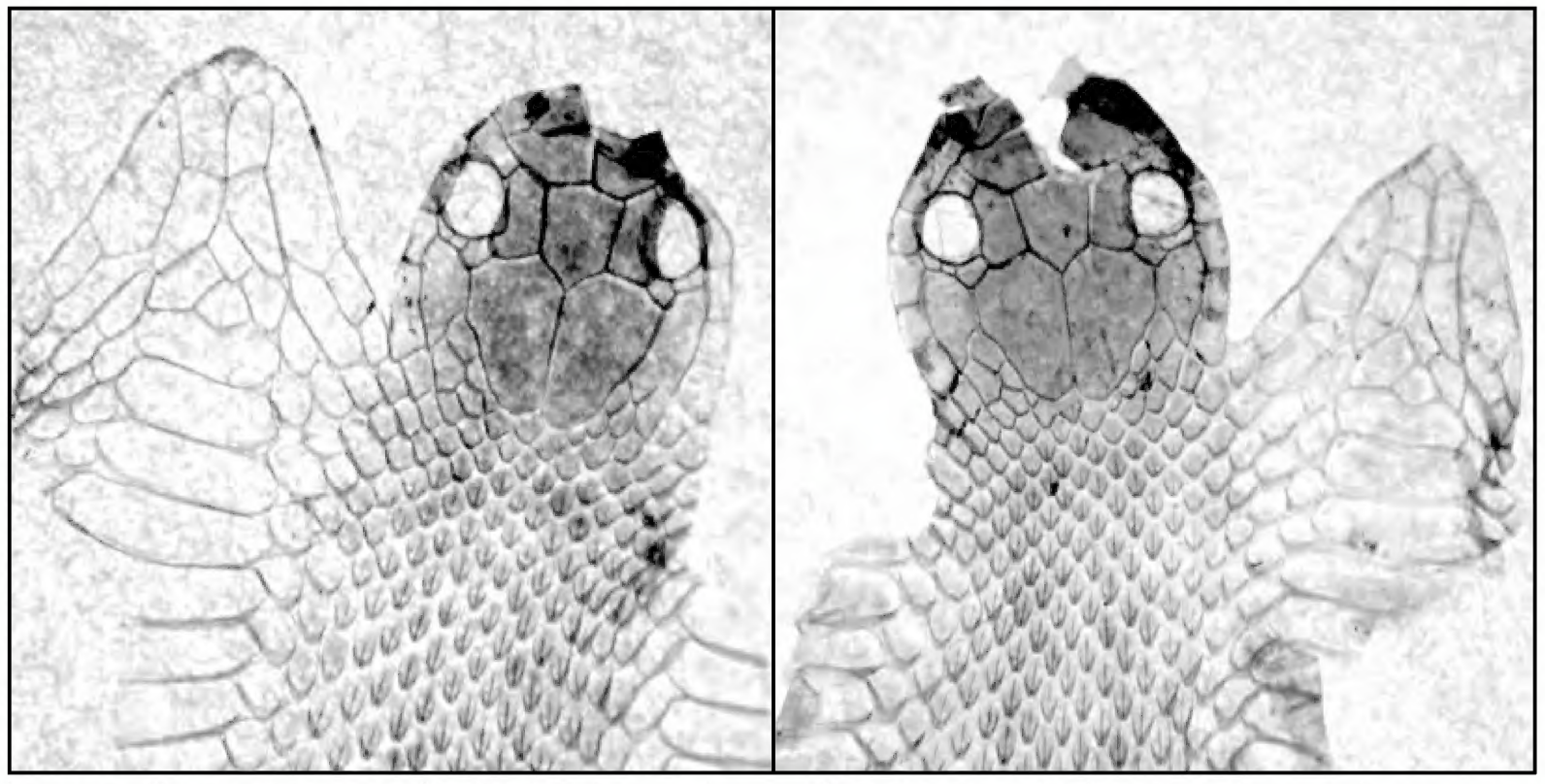

Figure 2. Head scales of snake B. The left photograph is shed BG 348, obtained 7 June 2006; the right photograph is shed BG 384, obtained 16 May 2007.

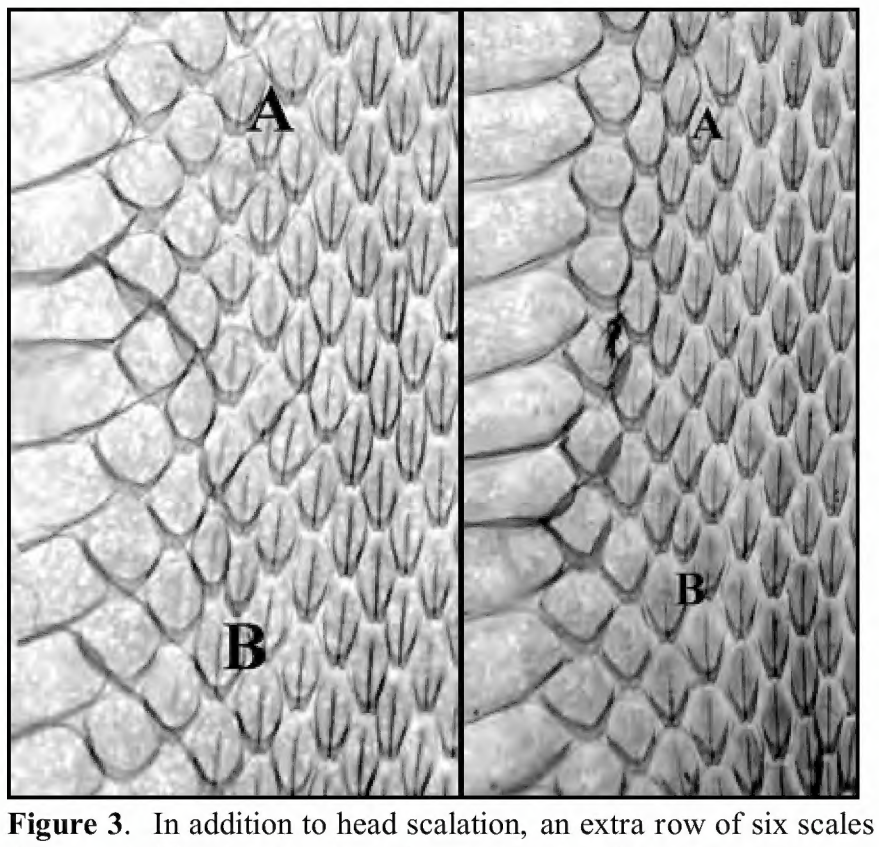

Figure 3. In addition to head scalation, an extra row of six scales (from A to B), at midbody, between dorsal scale rows 3 and 4, helped to confirm that sheds BG 348 (left) and BG 384 (right) were from the same individual (snake B).

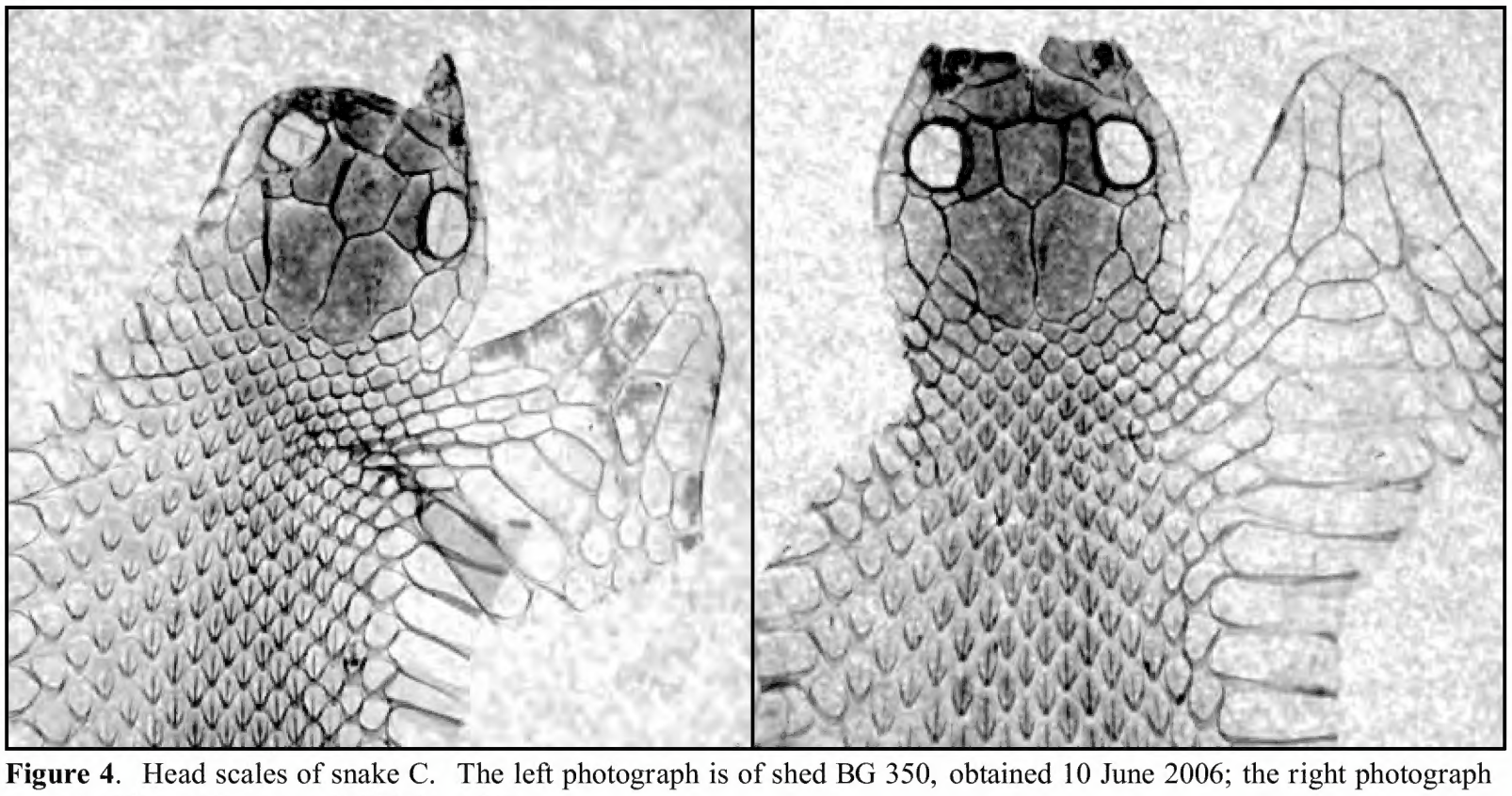

Figure 4. Head scales of snake C. The left photograph is of shed BG 350, obtained 10 June 2006; the right photograph is of shed BG 389, obtained 22 May 2007.

Table 2. Measurement data for three *Storeria d. dekayi* recaptured under the same piece of wooden paneling. Data provided include: frontal length (FL); frontal width (FW); and parietal length (PL), given as left/right. All measurements are to the nearest 0.1 mm, and were taken as described in Gray (2005). The change in the measurement between the first and second sheds is given in parentheses.

	First shed					Second shed				
Snake	Catalog #	Date	FL	FW	PL	Catalog #	Date	FL	FW	PL
A	BG 344	28 May 2006	3.3	2.5	5.1 / 5.1	BG 353	17 June 2006	3.3 (0)	2.5 (0)	5.1 (0) / 5.1 (0)
B	BG 348	7 June 2006	2.7	2.0	3.9 / 4.0	BG 384	16 May 2007	3.1 (+ 0.4)	2.4 (+ 0.4)	4.6 (+ 0.7) / 4.7 (+ 0.7)
C	BG 350	10 June 2006	2.0	1.7	3.5 / 3.4	BG 389	22 May 2007	2.6 (+ 0.6)	2.0 (+ 0.3)	4.3 (+ 0.8) / 4.4 (+ 1.0)

identify individuals. The pattern created by the sutures between scales does not appear to significantly change over time (pers. obs.).

After examining the 22 sheds, three matched pairs representing three individuals were identified (Figures 1–4). Data for these three sheds are summarized in Tables 1 and 2.

In total, 19 *S. d. dekayi* had utilized the debris pile; three of those snakes used the same piece of wooden paneling (47 × 35 cm) during preecdysis on at least two occasions. Time interval between captures of the three snakes ranged from 19 to 347 days (Table 1). Shed skins of *S. d. dekayi* are almost always found beneath some sort of cover (pers. obs.). It is assumed here that if the snakes had been left under the paneling, they would have started the shedding process beneath it.

While it has been noted that snakes may return to the same shelter to shed (Greene, 2004), as far as I am aware, this is the first report of site fidelity during ecdysis for *S. d. dekayi*.

All mounted sections of shed skin are in my personal collection; unmounted material has been deposited in the Sternberg Museum of Natural History, Fort Hays State University, Hays, Kansas.

I thank Jeff Beane and Mark Lethaby for reviewing the manuscript and offering helpful suggestions.

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Bull. Chicago Herp. Soc. 43(3):42-44, 2008

Book Review: *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our Understanding, Sixth Edition* by the Committee on Standard English and Scientific Names (Brian I. Crother, Committee Chair) 2008. Society for the Study of Amphibians and Reptiles. Herpetological Circular Number 37. 84 pp. Softbound. ISBN 978-0-916984-74-8

Go to: SSAR's link at http://herplit.com/ for ordering information.

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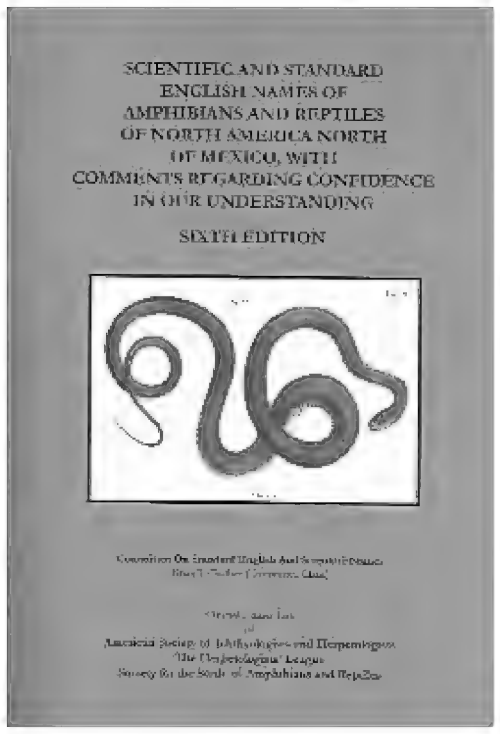

Change is inevitable and this is certainly true of biological taxonomy, especially in the age of molecular systematics. The previous edition of this annotated checklist to North American herpetofauna by Brian Crother and others (published in 2000, but actually printed and distributed in early 2001) has been out of date for several years. An errata (Crother et al., 2001) and a partial update (Crother et al., 2003) to the 2000 list were subsequently published, but the number of changes to scientific and standard English names for amphibians and reptiles of North America (north of Mexico) has only increased. Thus, a new names list from the Society for the Study of Amphibians and Reptiles (SSAR) is a welcome addition to the literature for those of us who want or need to stay abreast of these revisions.

This book is identified as the sixth edition of the SSAR's names list for North America, and it is indeed the sixth version to be published by the society as a *Herpetological Circular* (earlier editions appeared in 1978, 1982, 1990, 1997, and 2000 [2001]). However, the previous (2000) edition was not identified as the fifth edition but rather as an all-new publication. The "fifth edition" label was appropriated by Collins and Taggart (2002) for the first names list that was published by the Center for North American Herpetology (CNAH). The CNAH list was identified by the authors as a revision of the earlier SSAR publications. The SSAR and CNAH lists are similar in many ways but have important differences. For those who are curious about the "speciation event" leading to these two parallel lists, see my earlier review of those publications (Stuart, 2002). It will be interesting to see if the forthcoming revision of the CNAH names list, scheduled for printing in 2009, will also be identified as a sixth edition, thereby providing an example of two independent publications sharing a common ancestry of four earlier editions!

A lot is the same in the new edition of the SSAR list, but a lot is also different. The basic format of the publication is mostly unchanged from the 2000 edition. The list was produced by a committee of herpetologists chaired by Brian Crother. The committee members are all specialists in the systematics and taxonomy of North American herpetofauna. Most are the same individuals who produced the 2000 list. Separate subcommittees focused on each of the major groups (orders or suborders) of herpetofauna. This has resulted in some minor inconsistencies in how the list was compiled and annotated. For example, the anuran subcommittee helpfully identified the available species reviews prepared for the *Catalogue of American Amphibians and Reptiles* (also published by SSAR), but the other subcommittees did not. One small but useful change in format is that exotic species now established in North America and Hawaii are listed in a separate section of the book, authored by Fred Kraus.

The major changes are in the scientific names. The genera of many anurans have been revised, with a number of long-dead names from the 19th century resurrected and given new life in the 21st. Those who have always known true frogs as *Rana* must get used to *Lithobates* for most of our species, including Leopard Frogs and American Bullfrog. *Bufo* (True Toads) is gone from North America, replaced by *Anaxyrus*, *Ollotis*, and *Rhinella*. Among the snakes, *Elaphe* (Ratsnakes) is now *Pantherophis*, and *Masticophis* (Whipsnakes) has been sunk into synonymy with *Coluber*. In most cases, the authors have helpfully identified the previously-used generic names and refer the user to the genus used in this list, although they neglected a few (e.g., *Elaphe* and *Stilosoma*). In addition, many subspecies have been elevated to species level, while others have been dropped from the list. Even those of us who try to keep up with the primary literature on herpetological taxonomy will have to refer to this publication to see if we are correct.

The book does not address families. This is an unfortunate omission since there have been recent publications proposing changes in this taxonomic category including a recommendation to place our spadefoots in Scaphiopodidae instead of Pelobatidae, the use of Brachycephalidae for some frogs formerly assigned to Leptodactylidae, and the partitioning of the North American colubrid snakes into several families. It's unclear to me if SSAR has any "official" position on these changes at the family level. This book would have been a good place to address the topic.

Extensive comments are provided for many taxa that explain why the current taxonomy is used. References could have been

provided in a few places, such as in the brief mention of questionable subspecies in *Sistrurus catenatus*. However, for the most part, the book cites the most pertinent publications. There is no Literature Cited section, as I would have preferred, presumably because this section would have added too many pages to the publication. Instead, citations are provided in abbreviated form within the text. Some citations are more abbreviated than others—in the annotations for the snake genera *Bogertophis* and *Cemophora*, the relevant reference is cited as simply "Burbrink and Lawson, 2006."

Speaking of errors, I unfortunately detected quite a few during a cursory review, some trivial and some not. In the *Acris crepitans* account, the parentheses are missing around a reference. "Elevated" is misspelled in the *Heterodon nasicus* account. Both "Gophersnake" and "Gopher Snake" are used in the section on *Pituophis*. The lizard genus *Cophosaurus* and species *Cophosaurus texanus* were both described by Troschel in the same publication, but the citation of the year of publication differs between the two. In the *Aspidoscelis gypsi* account, *Aspidoscelis inornata* is incorrectly referred to as "*A. inornatus*" (within a poorly written sentence). Similarly, in the accounts concerning species of *Pantherophis*, *P. obsoletus* is incorrectly referred to as "*P. obsoleta*" in two places. In the comments for species of *Spea*, a paper by Wiens and Titus is referenced four times, but only once correctly.

For several species and subspecies, the citation of author and year of the original description is incorrectly presented (either with or without parentheses). For those not familiar with this nomenclatural convention, the author and year are placed in parentheses only if the genus to which the species or subspecies is currently assigned is different from the one used in the original description. For example, the currently recognized *Plestiodon multivirgatus epipleurotus* was originally described as *Eumeces epipleurotus* by Cope in 1880; thus, the lack of parentheses around "Cope, 1880" in the book is technically incorrect. Errors of this kind appear in the sections dealing with *Plestiodon* (formerly *Eumeces*), *Pantherophis* (formerly *Elaphe*) and *Hypsiglena*.

Pointing out such mistakes might seem like nitpicking. However, this book is presented as the official names list for professional herpetologists working in North America; as such, it should be a trustworthy reference for proper citation of names. Given the number of errors I detected in just a brief review, I have to question its reliability. I also have to wonder if the manuscript was subjected to peer review. Remarkably, some of the errors I ran across in this new edition were also in the 2000 edition.

Other than the errors, my biggest complaint is that, once again, SSAR elected to print a new edition and sell it, rather than simply post the revised list as an easily-accessible PDF document on the SSAR's website. The 2000 edition was similarly sold in paper form first, and only later posted as a free PDF for interested users. This bias against electronic publication limits the book's availability only to those who are willing to mail-order it (at least until SSAR gets around to posting it). It also imposes constraints on how the publication is formatted to meet the demands of paper publication. A PDF-only publication could be as lengthy as necessary and include a complete Literature Cited section instead of abbreviated citations within the text. The comments could be placed as notes at the back of the book instead of within the list itself, allowing a user to print just the list. The publication also could be updated more easily, efficiently and frequently since there would be no printing cost, except to the user who wants a paper copy. Presumably, the numerous errors will now have to be addressed in yet another paper publication such as an errata in *Herpetological Review*, as was done to correct many of the errors in the 2000 edition (Crother et al., 2001). Taxonomic updates likely will be published in a similar piecemeal fashion. If any type of scientific publication benefits from internet technology, it is a names list that requires frequent revision. Other scientific publishers have made the jump to electronic publication and it's time for SSAR to do the same.

Complaints aside, this is an important summary of North American herpetofauna and should be useful to anyone interested in the taxa of this region and in the many recent changes in nomenclature. To order a paper copy, go to the SSAR's link at Bibliomania! at http://herplit.com/. Until 31 May 2008, the book can be purchased by SSAR members for $8.00 for the first copy, $6.00 for each additional copy (plus postage); after that date it is $12.00 per copy. Alternatively, you can wait until the electronic version of the 2008 edition is posted on the Web, along with the inevitable errata. But get a copy . . . you will need it!

Acknowledgments

I thank Mike Dloogatch for helpful comments on the manuscript.

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Unofficial Minutes of the CHS Board Meeting, February 15, 2008

The meeting was called to order at 7:34 P.M. at the Schaumburg Public Library. Board member Cindy Rampacek was absent.

Officers' Reports

Recording Secretary: John Archer read the minutes in Cindy Rampacek's absence and they were accepted unanimously.

Treasurer: Andy Malawy reviewed the January financial reports. CHS is in better shape financially for January 2008 than it was for January 2007. The tax return is completed and ready to be mailed in.

Membership Secretary: Membership was about 584 in January, the highest in two years.

Vice-president: Jason Hood was unhappy with his introduction of last month's speaker and vowed to do better in the future. Upcoming speakers are listed on the CHS website.

Corresponding Secretary: January was relatively slow. Debbie would like to keep a formal log of the messages the CHS receives so we can all see the type of calls that come in.

Sergeant-at-arms: There were 62 attendees at the January meeting.

Committee Reports

Shows: A list of upcoming shows is posted on the CHS forum. New participants who volunteer at 4 shows within a 12-month period will receive a polo shirt with the CHS logo.

ReptileFest 2008: The board continued discussion about creating written guidelines for exhibitors. Also discussed were T-shirts for exhibitors who sign up early, numbering exhibitor tables to facilitate the competition, and getting old ReptileFest videos up on YouTube and on DVD to show at other shows.

Raffle: Thank you to all who have donated to the raffle. If you have items to donate, please speak with Josh Chernoff to arrange donation to the raffle. We will request additional herp-related donations from companies and will acknowledge their donations both at the raffle and in the *Bulletin* and send thank-yous.

Grants: The committee met February 13 to review 19 proposals. Twelve grants were made totaling almost $5000. The board discussed the possibility of increasing the maximum possible award for an individual grant to $1000, which might improve the quantity and quality of proposals submitted.

Old Business

Symposium: The board discussed holding the 2009 Midwest Symposium on the same weekend as NARBC, though not at the same venue. The board is checking into hotel and meeting room rates.

Merchandise sales: Miller Ray is now in charge of accounting for the magnets and Spot books that go out to various shows.

Web Site: Aaron LaForge is working on improving the CHS web site.

Aquarium storage: Thanks go to the Bavirshas for providing storage for the aquariums used for the Illinois Herps exhibit at ReptileFest.

New Business

Jason Hood emphasized that the board should be spreading the word about the CHS forum as a way to find information about upcoming speakers and shows, as well as other current issues.

The CHS has been offered space at a local pet store to place merchandise for sale. The board has made it a policy in the past to avoid the appearance of endorsing pet stores by placing merchandise, and will continue that policy.

The Bavirshas are looking for a green anaconda for ReptileFest. They have a home arranged for it afterwards.

The board discussed writing a letter as a society to address the recent request by the U.S. Fish and Wildlife Service for biological and economic information on snakes of the genera *Boa*, *Python* and *Eunectes* for possible addition to the list of injurious wildlife under the Lacey Act. Jason Hood will draft the letter.

Also discussed was the sale of small critters encased in resin from websites and at least one Hallmark store in Arizona. The board did not feel it was appropriate to address this issue as a society, but individuals may decide to write letters on their own.

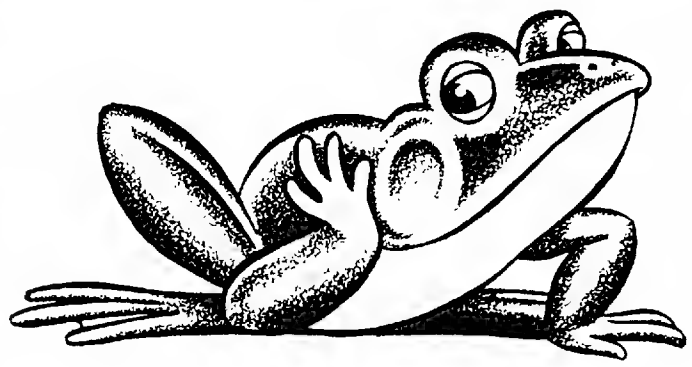
The meeting adjourned at 9:39 P.M.

Respectfully submitted for the recording secretary by Amy Sullivan

Bull. Chicago Herp. Soc. 43(3):45-47, 2008

The Tympanum

Comments on a Flawed Herpetological Paper and an Improper and Damaging News Release from a Government Agency



In mid-February 2008, a news release issued by United States Geological Survey (USGS) indicated on a map of the U.S. mainland the "climatically suitable" areas for "invasive alien pythons." Now many people feel that there is nothing more terrible than being invaded by an alien python and the USGS news release quickly generated extensive publicity. Newspapers and television programs around the country made mention of the story. Federal biologists were interviewed. The resulting publicity was a lesson in fear-mongering promoted by a government agency.

The reports were based on a paper titled "What Parts of the US Mainland Are Climatically Suitable for Invasive Alien Pythons Spreading from Everglades National Park?" The authors are Gordon H. Rodda, Catherine S. Jarnevich and Robert N. Reed. Dr. Rodda graciously sent us an advance copy of the paper, which has been accepted and is in press at *Biological Invasions*. The authors are employed by the U.S. Geological Survey Biological Resources Division and are identified on the internet as "invasive species biologists." The invading alien python to which the title refers is the Burmese python, *Python molurus bivittatus*, an Asian species now included on the list of 45 exotic reptile species found in South Florida.

The conclusion of the paper is that the Asian rock python, *Python molurus*, could thrive in the climate of the southern third of the U.S.A., including Memphis, Oklahoma City, Dallas, Tucson, San Francisco, Fresno, Washington, D.C., and even southern Utah. In an interview published by the *San Francisco Chronicle* on 21 February 2008, biologist Rodda stated that already he had found one Burmese python that had traveled 100 miles from the Everglades on its way to California.

We find it irresponsible for federal biologists to have publicly stated or published that "invading alien pythons" from the Everglades were in the process of spreading throughout the country. As we will show, there are no data in the paper that would support this conclusion. The publicity sought and managed by USGS employees constitutes a grave abuse of the public trust. This was a careful presentation based on data that are severely compromised by selective interpretation, resulting in gross exaggeration of what are posed as probable future scenarios.

In our opinion, to disseminate as fact such fanciful predictions of disaster to a naive public in the name of science and government agencies amounts to ecoterrorism. It appears to us to be a self-serving attempt by federal biologists to bully and intimidate the American public into supporting unnecessary regulation, research and grants.

We here discuss our various criticisms of the paper and its conclusions.

Why Is the Indian Python Included in the Analysis?

A fundamental flaw of the study is the addition of the Indian python, *Python molurus molurus*, to the analysis. The first sentence of the second paragraph in the Introduction reads as follows: "The Burmese Python is a questionable subspecies of the Indian Python, *Python molurus* (McDiarmid et al. 1999)." This casual throwaway line is apparently intended as the justification to expand the analysis to include the western subspecies, *P. m. molurus*.

Close examination of the account for *P. molurus* in McDiarmid et al. (1999) clearly shows that there is nothing "questionable" about the validity of the taxon *bivittatus*. It is currently accepted and in wide use by all authorities and has been for nearly 80 years (Mertens, 1930; Stull, 1935; Stimson, 1969; McDiarmid et al., 1999). In fact, we are aware that there has been discussion among several groups to recognize *bivittatus* as a full species; at least one manuscript is in prep.

The Indian python, *P. m. molurus*, is listed as an endangered species by the U.S. Endangered Species Act, and as an Appendix I endangered species by CITES. The U.S. captive population is small, with fewer than 100 individuals (our estimate) spread across the country in private hands, and a few in zoos. The taxon has not been imported since 1972. There are no established wild populations in North America and there are no reports of escapes; to our knowledge, not a single specimen has ever been recovered from the wild in the U.S.A.

The Indian python is one of two python taxa endemic to the northern hemisphere, while the Burmese python distribution extends to 8°S latitude. The Indian python is a widespread, polymorphic taxon with some populations highly adapted in size, diet, behavior, and thermal tolerances in response to habitat, elevation and climate unique to the Indian subcontinent. Specimens from the populations in the xeric areas of Pakistan rarely exceed 3 m in length and adult size of some is less than 2 m (Minton, 1966, and pers. com.). Elsewhere in the range, specimens have been known to reach or exceed 5.5 m (Wall, 1912; Murphy and Henderson, 1997).

As evidence of their unique genetic identities, the two subspecies exist in sympatry in several areas of their distribution (Barker and Barker, 2008). They apparently maintain their genetic identities through resource partitioning of prey and habitats (O'Shea, 2007).

We question the logic and the motives of the authors that they would have even considered to include data derived from the distribution of the Indian python in this study when clearly only *P. m. bivittatus* is the focus of their concern. As is the case with other flaws in this study, this decision creates the distinct impression that the authors manipulated data purposely to create a particular result.

The decision to include the Indian python in the data set and analysis negates all validity to this study.

Problems with Burmese Pythons in the Analysis

Never mind the Indian python problem, an equally serious flaw exists in the data sample taken across the range of Burmese pythons.

Burmese pythons naturally occur in the countries of India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Laos, Cambodia, Vietnam, China and Indonesia. Most of these countries have never allowed commercial exportation of live Burmese pythons. To our knowledge, there has never been any specimen in captivity or for sale in this country that was identified as being from India, Nepal, Bhutan, Bangladesh, Myanmar, Laos, Cambodia, China or Indonesia.

The following import/export information for Burmese pythons comes from a 1989 data sheet created by CITES Trade Database (Global Python Trade, 1984–1998). Information on trade in pythons is available today at [http://www.unep-wcmc.org/citestrade/].

Thailand was the primary exporter of Burmese pythons from the late 1960s until commercial exports were stopped after 1985. We are told by Otis Whitaker, a Burmese python importer in the 1970s who spent many years traveling to Bangkok, that the bulk, if not all, of Burmese pythons exported from Bangkok were collected in the general vicinity of Bangkok. Most or all came from between 13 to 14°30′N latitude, at elevations not exceeding 100 m.

In 1986, Malaysia suddenly began exporting several thousand Burmese pythons; the following five years Malaysia was the dominant supplier to the American pet trade. Significant numbers of Burmese pythons were exported from Singapore in 1986 and from Taiwan in 1990. Interestingly, Burmese pythons are not known to naturally occur in any of the three countries (Barker and Barker, 2008). We do not know the origins of those pythons, but it seems parsimonious to assume that those shipments of extralimital pythons originated from Thailand. Hong Kong, then a colony of the United Kingdom, also exported live pythons in 1988, but the circumstances are the same as for Singapore and Taiwan, and it is highly unlikely that those pythons originated from anywhere near Hong Kong.

Numbers of imported Burmese pythons steadily declined from 1988 through the early 1990s. Relatively few live Burmese pythons were exported during 1991–1993.

In 1994, Vietnam began to export live Burmese pythons, and since that time has been the source of nearly all Burmese pythons imported into this country. These Burmese pythons imported into the U.S.A. are mostly from captive breeding farms in southeast Vietnam in the vicinity of Ho Chi Minh City. This is located between 10 and 11°N latitude at an elevation less than 50 m.

Therefore it is our observation and opinion that all Burmese pythons in the United States are from or descended from tropical, low latitude, low elevation populations. Rodda et al. (2008) even state "Furthermore, the gene pool of the North American population of *P. molurus* may include only a small subset of the genetic variability found in the native range. . . ." Regardless, they still chose to include in their data set samples derived from throughout the entire distribution of both *P. m. bivittatus* and *P. m. molurus*.

Again, decisions to include irrelevant data from populations that do not exist and have never existed in captivity very negatively skew the results of the analysis. One must infer that the decision to analyze data from throughout the range of the two subspecies was made purposely to create a particular result. This misuse of data alone negates all validity of this paper.

The Data

There is a discourse in the Introduction on how little is known about the natural history, ecology, and population biology from any locality. The authors state, "Unfortunately, relevant demographic, energetic, or physiological values are unknown for any place in the python's range." Apparently when faced with these daunting obstacles, invasive species biologists turn to climate data as a proxy in order to make predictive models.

We can only assume that the data set used in the analyses included climate data derived from localities north of 30°N latitude, elevations up to 2400 m, and temperatures as low as 2°C—these being some of the extremes mentioned in the text. In several places in the text the authors talk about localities in the "foothills of the Himalayas" and hibernation for extended periods of time—neither of which applies to southern Vietnamese pythons. It may be that there are small, outlier populations to which this applies, but it does not apply to the Burmese pythons now residing in the Everglades.

We don't know what parameters were set in the data analysis because the data are not included in the paper. We emailed a request to authors Rodda and Reed for information about what environmental factors and values were utilized in the analysis. Our requests were unanswered.

Again, this suggests the possibility that the data have been manipulated to achieve a foregone conclusion. How many separate analyses were made, each time stroking the data until finally the desired map was created?

We recommend that it would be a proper action now for the authors to publish the data used in all analyses, including the exact locations of the 149 weather reporting stations used in the analysis, what exact snake localities they supposedly were paired with, and all data used from each locality, including location, elevation, all temperature and climate data, annual and seasonal precipitation, and any other seasonal data. In particular, it would be important to list all analyses that were made, and all changes of the data set to achieve each analysis.

The Analysis and Results

This analysis used climate data from throughout the ranges of the two python subspecies to generate a map showing the general climatic conditions within the distribution. Then, correlating the Asian data to U.S. climate data, a map was generated of the climatic conditions in the U.S.A. theoretically suitable for the survival of the two taxa. In the results of the published study, the approximate lower third of the country was indicated as favorable in climate.

It is, however, an erroneous conclusion to state that the results predict that the Burmese python could survive anywhere in the lower third of the country, even if climate were the only limiting factor. Nevertheless, as given by the title of their paper, this was the statement made by the authors.

This conclusion totally ignores the fact that data for a second taxon were included in the analysis. Also, and more important, to arrive at this conclusion is to totally ignore the importance of adaptations that each population has made to its particular locality and habitat.

As interpreted by the authors, their results predict that a Burmese python from tropical southeastern Vietnam could survive

if it were placed in temperate Sichuan, China, or in the deserts of western Pakistan. That is no different than making the ludicrous statements that the Burmese pythons in the Everglades would thrive in Oklahoma City or San Francisco. Yet those exact statements were broadcast all across the nation on television, radio, newspapers, and magazines during the week of 18–22 February 2008.

We feel that the better conclusion to draw from the analysis is that if one could pick and choose from any of the populations of the Asian rock python in nature, then by selectively placing pythons from particular localities into climatically similar localities in the U.S.A., it might be possible to establish *P. molurus* populations in many localities in the lower third of the country—if climate was the only limiting factor.

Of course, another interpretation is that over a period of perhaps one or two million years, the Burmese pythons in the Everglades may be able to expand their range in the U.S.A. through adaptation and evolution, as has happened in Asia. Somehow this is not the message that was broadcast in the USGS news release.

Conclusions

We don't fault scientists for setting up and working through unsuccessful projects. We don't fault scientists for coming to wrong conclusions. However, when biased, self-serving, and damaging information is disseminated in a tabloid-like manner by news releases to the national media, we must question the motives, integrity, and the agenda of the U.S. Geological Survey. We make the following points:

Before this paper was submitted to a journal, it should have undergone internal review within the U.S. Geological Survey. Was this paper released by the USGS in accordance with the strictly mandated protocol in the federal Information Quality Act (IQA)?

How did this paper pass the peer review ostensibly required before acceptance for publication in the journal *Biological Invasions*? We question the objectivity of the journal, the qualifications of the reviewers, and the choices made by the editor.

All persons involved with snakes, including snake keepers, hobbyists, snake breeders, importers, exporters, pet shops, nature centers, schools, zoos, and even children with pet snakes have been irreparably and immeasurably damaged by the false reports given to the media by USGS employees. Decades of work to educate the public about snakes were destroyed in the 15 minutes of fame enjoyed by these researchers.

This report and its circus-like news release constituted an attack on American small businesses. Reptile breeders, pet stores, rodent breeders, and other ancillary businesses have been drastically and negatively affected by this study. Tens of thousands of businesses have been damaged.

Additionally, in Florida and across the South, real estate brokerages and agents, developers and city governments also may have been damaged by the national hysteria created by the USGS News Release. The idea was planted in the mind of the public that pythons are invading the South, all based on this deeply flawed report.

We feel that the U.S. Geological Survey and its employees have acted improperly in the manner in which this report was prepared and then released to the public. This is particularly egregious considering that the paper itself is little more than yellow journalism cloaked as science. We question whether the agenda that was transparently the underlying basis for this paper, that being to exaggerate and inflate the problems posed by Burmese pythons in South Florida, was that of the researchers, or of the U.S. Geological Survey, itself. The highly subjective nature of this invalid study, the inflammatory and incorrect results publicized in the USGS news release, and the resulting media storm, have been the equivalent of yelling fire in a crowded theater—lots of people were hurt, and there was no fire.

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What You Missed at the February CHS Meeting

John Archer
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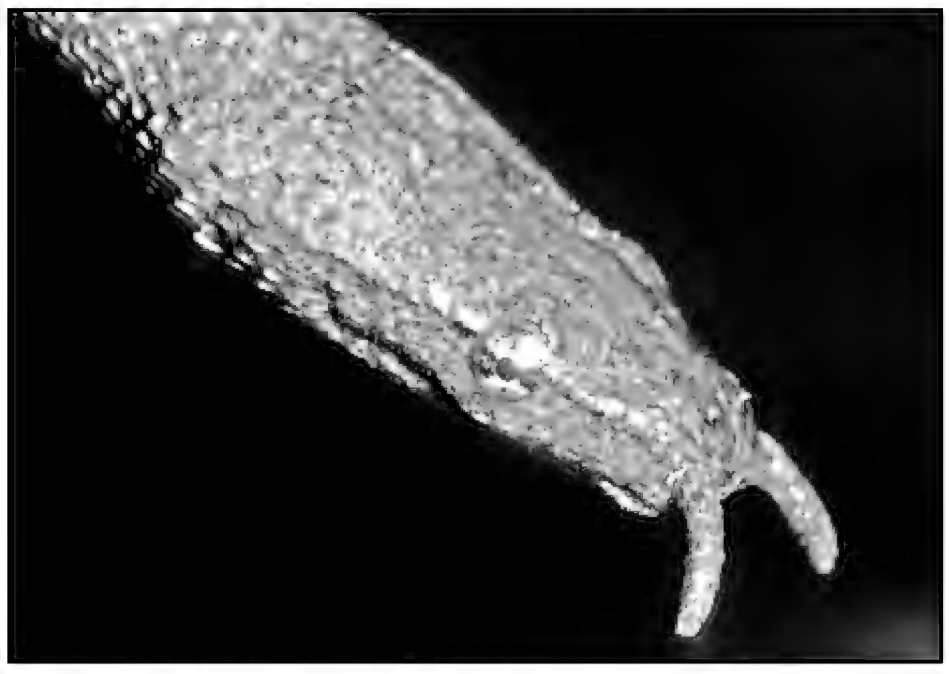
As many of you may have guessed, I'm an anecdote junky. I just enjoy those cool little tales and facts that are sometimes difficult for the layman to pull from a scientific treatise, but for me flesh out the animal and allow me to think of it as a living, breathing creature rather than a research subject. Every good zoologist has these stories, usually from field studies, but sometimes from lab work. Many of these little anecdotes aren't even published because they can't be verified or can't be worked into a research paper, but I think that one of the values of having speakers is that they can tell these anecdotes to the right audience. Fortunately for us, February's speaker managed to include many of these precious bits of natural history, and his speech was the more enjoyable because of it.

John C. Murphy was in his element. John is a past president of the CHS as well as having served in many other board positions. He is the author of at least three books, many papers, and after 38 years of teaching, is now a Research Associate in the Division of Amphibians and Reptiles at the Field Museum. He has studied homalopsid snakes since 1992, and has been doing field work in Thailand since 1997. It was our pleasure to have him speak to us on both those subjects.

John's talk opened with a slide of the beautifully weird head of one of the strangest in a family of strange snakes. Homalopsids are mud-loving, nostril-sealing, mostly aquatic, thermal conforming, rear-fanged Asian snakes that include maybe the most bizarre appearing snake in the world, the tentacled snake (*Erpeton tentaculatus*), and also include species that may be the most abundant snakes on the planet. What's not to like about those characteristics? The family ranges from the Indus River in Pakistan to the Philippines, New Guinea and Australia, and John flashed a picture of the land exposed during the last ice age as an explanation for that range. Vast areas of mud flats were exposed as the water was tied up in ice 12,000 years ago, and these poor-swimming, shallow-water denizens must have loved those vast expanses of their favorite medium. John studies these snakes because little is known of their natural history (hard to see things in mud), and they represent evolutionary experiments in terrestrial, freshwater and marine transitions.



The tentacled snake, *Erpeton tentaculatus*.

A black-and-white image of two types of grooved fangs appeared, one grooved and needle-like from *Homalopsis buccata*, the puff-faced water snake, a fish eater, and the other shorter and obviously more robust from *Fordonia leucobalia*, the white-bellied water snake, a crab eater. Both fangs were deeply grooved, showing that all of these snakes are venomous, some highly toxic, and demonstrating the dental diversity of this family.

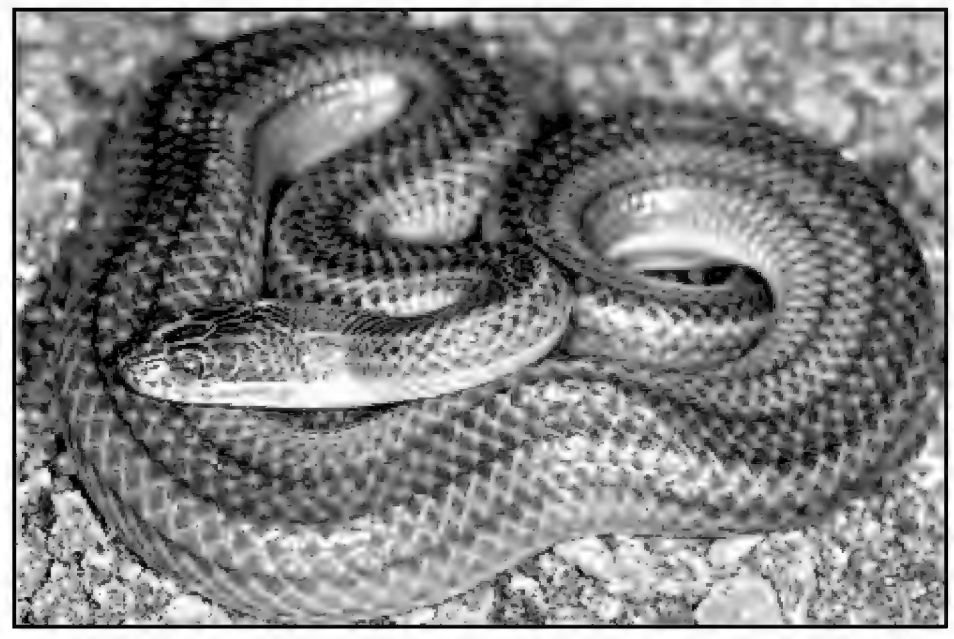
Cerberus rynchops, the dog-faced water snake, slithered away from us in a slide that included a shot of the mangroves the snake inhabits. John told us that fishermen would slide on their knees on boards over the mud flats collecting these snakes, and two managed to bag over three hundred in about 45 minutes

A picture of two Thai men, waist deep in either thin mud or thick water, with the researchers sitting on the bank, showed how the locals fish by draining ditches and then wading and feeling through the mud for the stranded fish. The by-catch of snakes is presented to the researchers.

All the homalopsids feed underwater, and John had a picture of a captive *Enhydris enhydris,* the rainbow water snake, feeding on a betta, or Siamese fighting fish. Normally in the wild these snakes consume quantities of much smaller prey, which their warm environment allows them to digest rapidly.

Another slide of the tentacled snake included a photomicrograph of the tentacles, which are every bit as strange up close. John supposes that these are sensory organs that are probably useful for detecting prey in the limited visibility where these snakes exist. The strike of the tentacled snake is lightning fast, beating a camera running at 1/60 of a second per frame, and water swells the head and neck with the force of the strike.

John gave us a look at Tonle Sap in Cambodia, the largest lake in Southeast Asia. Slides of the homalopsid snake harvest in that lake also showed the crocodiles that many Cambodians are raising in their back yards for a possible Chinese market. The snakes are fed to the crocs after fish became too expensive. The crocs are Siamese crocodiles (*Crocodylus siamen-*



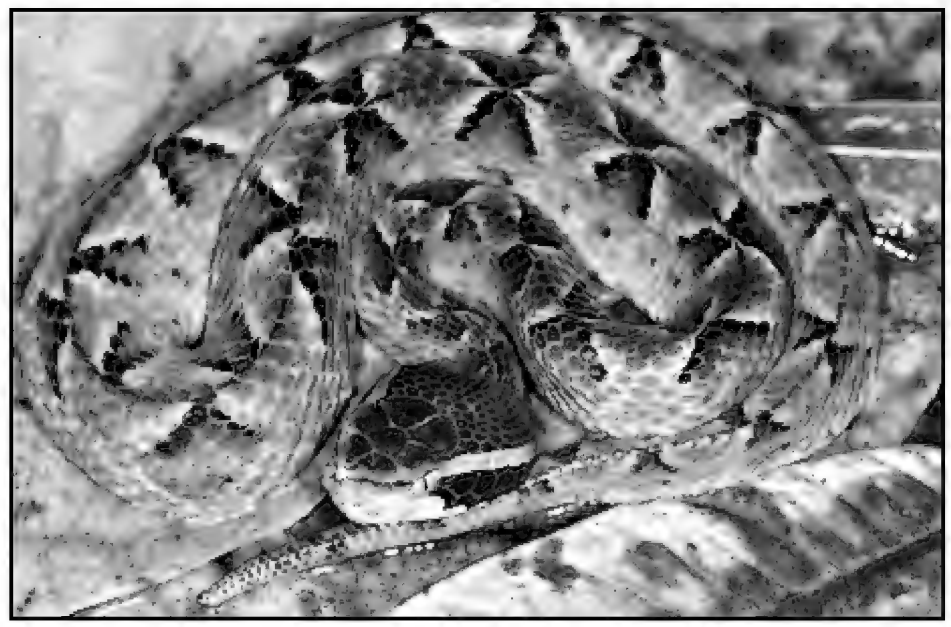
The rainbow water snake, *Enhydris enhydris*.

The grooved rear fangs of two homalopsid snakes. The fang on the left is from a puff-faced water snake, *Homalopsis buccata*, a fish-eater; the fangs on the right are from a white-bellied water snake, *Fordonia leucobalia*, which feeds on crabs.

Glyphoglossus molossus, nicknamed by some the Shrek frog.

Flying dragon, *Draco* sp.

These snakes were harvested at Tonle Sap in Cambodia, and are intended as food for crocodiles being raised in backyard crocodile farms.



Malayan pit viper, *Calloselasma rhodostoma*, photographed in the middle of a college campus.

Blyth's river frog, *Limnonectes blythii*, which lacks a voice but does have fangs!

sis), but are frequently hybridized with the Cuban croc (*C. rhombifer*) to get tougher hides.

A nice juxtaposition of *Cantoria violacea*, Cantor's water snake, and its prey, an *Alpheus* shrimp, appeared. The shrimp has one huge claw that it can snap, causing a cavitation bubble in the water that creates a loud popping sound and a flash of light, thus giving them the common name of pistol or snapper shrimp. The snake is very long and thin with two hundred and seventy vertebrae, and has a wide distribution but is not very common.

Finally he showed us an infrared photo of the dwarf crab-eating snake (*Gerarda prevostiana*), eating. The remarkable thing about this snake is that it's the first snake that has been discovered to actually break up its prey rather than consume it whole! The slide showed us a crab in two parts, one piece held in the little snake's mouth after being ripped from the piece being held in its coils. Too cool!

John then took us on a tour of Thailand's herpetofauna, which probably numbers over seven hundred species because of the country's long north-south axis and its relatively wide altitude range, giving Thailand many diverse habitats in an area the size of Texas. He broke the animal pictures into groups, beginning with anurans.

We viewed slides of Inger's river toad (*Phrynoides juxtasper*), a toad as large as the marine toad (*Rhinella marina* [formerly *Bufo marinus*]), and a voiceless Blyth's river frog (*Limnonectes blythii*) that has fangs. John nicknamed *Glyphloglossus molossus* the Shrek frog, and those of us who saw the slide could only agree that the name was appropriate. The local people spear these frogs from motor scooters and then barbecue them. He showed a newly described frog (*Theloderma licin*), that was a beautiful cream and brown but was all brown when captured.

Turtles were few, but John had shots of Malayan snail-eating turtles (*Malayemys subtrijuga*) being barbecued, which certainly partially accounts for the scarcity of turtles throughout Asia. We saw soft-shelled turtles also, including two Asian giants (*Chitra chitra* and *Pelochelys cantorii*) that could grow to forty inches in diameter! Unfortunately, both are very rare.

Lizards were represented by shots of some flying lizards (*Draco* spp.) that John says can be mistaken for butterflies

Malayan snail-eating turtles, *Malayemys subtrijuga*, on the grill at a public market in Thailand.

Long-nosed tree snake, *Ahaetulla prasina*.

when first seen because of their aerial acrobatics. One lizard (*Leiolepis belliana*), the butterfly lizard, runs on its hind legs to escape, but when it gains enough speed, will fold its legs and glide close to the ground to the nearest burrow. This isn't a flying lizard, and doesn't have the expandable ribs that the *Draco*s have! Gorgeous pictures of *Acanthosaura crucigera*, filled the screen, the mountain horned dragon threatening the photographer by showing its fluorescent blue mouth. And John showed pictures of *Varanus salvator*, the water monitor, taken at the Bangkok zoo. That's at the zoo, not in it. John says that these animals are thriving in commensal living with humans, actually eating garbage.

Snakes started with a picture of an *Acrochordus javanicus*, the elephant trunk snake, a highly aquatic snake reaching seven feet long and twelve inches in diameter. Apparently the Acrochordidae are the sister group for all the advanced snakes. Moss was growing on its head. He had a photo of a *Chrysopelea ornata*, the ornate flying snake, being held with the gecko that it had just regurgitated. It looked like the regurgitated remains that all of us have had to clean up on occasion, except John said that shortly after the photo was taken, the lizard sprinted off! It certainly looked incapable of that feat in the slide. Long-nosed tree snakes (*Ahaetulla prasina*) can be found in a variety of color phases in downtown Bangkok. And ten-foot-long king cobras (*Ophiophagus hannah*) are used as tourist attractions in one Thai town. The Natricidae were represented by *Rhabdophis subminiatus*, the red-necked keelback snake. The snake is extremely venomous and has glands on its nape that contain a defensive toxin, recently shown to be concentrated from the toads it eats. Burmese pythons (*Python molurus*) are ubiquitous, and John says that any animals that can live in rice paddies are in no danger of becoming extinct in Thailand. A nice picture of a Malayan pit viper (*Calloselasma rhodostoma*) ended the talk. The photo was taken in the middle of a college campus!

I get tired of apologizing for being unable to cover the entire talk. I can only offer you a sample and hope that our speakers don't get too annoyed at my butchering of their presentations. I doubt that John Murphy will be too upset, having filled enough positions within your society that he can at least sympathize with my plight. I know that he would encourage all of you to actually attend the meetings. He's one of us, and if you want to learn more from him, visit his web site at www.jcmnaturalhistory.com. Don't miss the picture of his daughter on his blog. You'll like it.

Herpetology 2008

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

HELLBENDER BLOOD CHEMISTRY

M. E. Solís et al. [2007, Herpetologica 63(3):285-292] present the first comprehensive report on hematologic and serum chemistry for both eastern and Ozark hellbenders, *Cryptobranchus alleganiensis alleganiensis* and *C. a. bishopi*, respectively. The Ozark subspecies is in decline through its range. Blood samples were analyzed for 25 parameters in 33 Ozark hellbenders from the North Fork of White River and the Eleven Point River in Missouri and 45 eastern hellbenders from the Davidson River–Looking Glass Creek in North Carolina and the Cooper Creek in Georgia. Each river was considered a population. In general, the majority of the blood parameters analyzed were similar between populations and subspecies for same-sex individuals, although a few significant differences were identified. These baseline data are important for future monitoring of hellbender populations, particularly as Ozark hellbender populations continue to age.

EGG AND CLUTCH STRUCTURE IN AMPHIBIANS

R. Altig and R. W. McDiarmid [2007, Herpetological Monographs 21:1-32] summarize the morphology of the jelly layers surrounding an amphibian ovum. They propose a standard terminology and discuss the evolution of jelly layers. Additionally, the authors review the morphological diversity and arrangement of deposited eggs—the ovipositional mode; five morphological classes are recognized, including 14 modes. They discuss some of the oviductal, ovipositional, and post-ovipositional events that contribute to these morphologies. Data are incorporated from taxa throughout the world but the authors recognize that other types will be discovered that may modify understanding of these modes. Finally, the authors discuss the evolutionary context of the diversity of clutch structure and present a first estimate of its evolution.

EXPERIMENTAL EVIDENCE FOR APOSEMATISM

R. A. Saporito et al. [2007, Copeia 2007(4):1006-1011] note that brightly colored poison frogs of the family Dendrobatidae contain an alkaloid-based chemical defense against predation. The bright coloration of these frogs is generally considered an aposematic signal to potential predators; however, relatively few studies have specifically tested this hypothesis. This paper reports the results of a field-based experiment designed to test the hypothesis of aposematism in the dendrobatid frog *Oophaga* (= *Dendrobates*) *pumilio* from the La Selva Biological Station, Costa Rica. Plasticine frog models were used to evaluate natural predation rates as a function of color. Predation rates on brown models were almost twice that of red models, suggesting that predators avoid brightly colored frog models. Birds accounted for the majority of attacks on the models. The results of this study provide experimental evidence in support of the hypothesis that bright coloration in dendrobatids functions as an aposematic signal to predators.

OLFACTORY DISCRIMINATION BY TORTOISES

P. Galeotti et al. [2007, Copeia 2007(4):980-985] point out that many animals obtain reliable information about potential mates, including whether they are conspecific, sexually mature, and healthy or not, mostly from olfactory cues. Previous experiments with snakes and lizards have shown that individuals can recognize conspecifics, sex, mating status, and health condition of potential partners by chemical cues. Using choice experiments, the authors examined whether both male and female Hermann's tortoises, *Testudo hermanni*, can detect and distinguish the odor of conspecifics from that of another species and an odorless control, and are able to discriminate sex and sexual maturity of individuals by chemical cues. Both sexes were found to correctly discriminate between their own species and another species' odors, but only males could distinguish sex and sexual maturity of potential mates by olfactory cues. These results indicate a sexual dimorphism in olfactory sensitivity in this species that might be derived from sexual selection and suggest that males and females should rely on different communication channels during social interactions.

LINGUAL LURING

K. A. Hansknecht [2008, J. Herpetology 42(1):9-15] reports the use of the tongue by mangrove saltmarsh snakes (*Nerodia clarkii compressicauda*) to lure prey, a behavior thus far adequately described for only one other snake species, the aquatic gartersnake, *Thamnophis atratus*. Fishes, the only verified component of the diet of these snakes are effectively attracted by the luring behavior. Lingual luring by these snakes is particularly unique in that the tongue is curled upon itself distally such that a conspicuous loop is formed at its terminus. The rapid oscillations typical of chemosensory tongue flicks are absent, though the terminal loop does exhibit some vertical and horizontal movement. The duration of luring tongue flicks is significantly greater than the duration of chemosensory flicks.

HAWKSBILL NESTING IN NORTHERN BRAZIL

M. A. Marcovaldi et al. [2007, Chelonian Conservation and Biology 6(2):223-228] present long-term data for hawksbill (*Eretmochelys imbricata*) nesting in the two main rookeries in Brazil: 1) northern Bahia and Sergipe, where the estimated number of nests laid each year increased from 199 in the 1991–1992 nesting season to 1345 in the 2005–2006 season and 2) Rio Grande do Norte, where the estimated number of nests laid in the 2005–2006 season was around 185–475. Adding these results, the number of hawksbill nests laid in the two main Brazilian nesting grounds in 2005–2006 was estimated at between 1530 and 1820 nests. Data on the percentage of hawksbill clutches kept in situ by season in each rookery are also presented. The apparent increasing trend in hawksbill nesting in northern Brazil is encouraging and seems to reflect a range of conservation measures implemented over the past 25 years.

DETECTABILITY IN HERPETOLOGICAL FIELD STUDIES

M. J. Mazerolle et al. [2007, J. Herpetology 41(4):672-689] note that detecting individuals of amphibian and reptile species can be a daunting task. Detection can be hindered by various factors such as cryptic behavior, color patterns, or observer experience. These factors complicate the estimation of state variables of interest (e.g., abundance, occupancy, species richness) as well as the vital rates that induce changes in these state variables (e.g., survival probabilities for abundance; extinction probabilities for occupancy). Although ad hoc methods (e.g., counts uncorrected for detection, return rates) typically perform poorly in the face of no detection, they continue to be used extensively in various fields, including herpetology. However, formal approaches that estimate and account for the probability of detection, such as capture-mark-recapture (CMR) methods and distance sampling, are available. This paper presents classical approaches and recent advances in methods accounting for detectability that are particularly pertinent for herpetological data sets. Through examples, the authors illustrate the use of several methods, and discuss their performance compared to that of ad hoc methods. They also suggest available software to perform these analyses. The methods discussed control for imperfect detection and reduce bias in estimates of demographic parameters such as population size, survival, or, at other levels of biological organization, species occurrence. Among these methods, recently developed approaches that no longer require marked or resighted individuals should be particularly of interest to field herpetologists. The authors hope that their effort will encourage practitioners to implement some of the estimation methods presented instead of relying on ad hoc methods that make more limiting assumptions.

CALLING BEHAVIOR OF A NEOTROPICAL TOAD

J. P. Caldwell and D. B. Shepard [2007, J. Herpetology 41(4): 611-621] report on *Rhinella ocellata*, a relatively unknown species of toad that occurs in Brazilian cerrado, a savanna-like biome. They studied home range and calling behavior of a population of this species in the state of Tocantins, Brazil, in 2004. Unlike most other species of bufonids, male *R. ocellata* did not migrate to ponds or other aquatic sites and form choruses for reproduction. Instead, *R. ocellata* had a prolonged breeding period during which males called from terrestrial sites typically on bare sandy soil near grass clumps or other shrubby vegetation. Calling sites were within open gallery forest in cerrado and ranged from 10 to 64 m from the shoreline of a river; similar calling sites were observed at another site in Tocantins in 2005. Home-range size was small compared to other toads that have been studied. Most individual *R. ocellata* remained within a small area during the study, typically calling nightly except during hot, dry periods. Calling bouts of *R. ocellata* consisted of an average of 36.9 short calls with fairly long intervals between bouts. Calling bout length averaged 31 sec. Neighboring individuals frequently alternated calls. One clutch of eggs found in a backwater pool of the river was tentatively identified as that of *R. ocellata*. The derived breeding behavior of *R. ocellata* is consistent with the historical difficulty in placing this species phylogenetically.

TWO SOUTH AFRICAN GECKO GENERA REVISITED

E. Greenbaum et al. [2007, African J. Herpetology 56(2): 101-114] note that South African *Homopholis* Boulenger, 1885 and Madagascan *Blaesodactylus* Boettger, 1893 are gekkonid genera originally distinguished by minor differences in scalation. Subsequent morphological studies have argued either for synonymy of the genera, or retention of the original 19th century taxonomy. Moreover, the validity and boundaries of putative species within each genus, as well as the relationships of each genus to other gekkonid genera, remains unresolved and contentious. The authors sequenced 3433 aligned bp of mitochondrial (ND2 and ND4) and nuclear (RAG- 1 and PDC) DNA sequence data from 14 samples of *Homopholis* and *Blaesodactylus* representing all six recognized species in these two genera, and based on a larger, unpublished study of all gekkotan relationships, eight samples of *Geckolepis* and two species of *Afroedura* for outgroups. Results indicated a strongly supported, monophyletic clade including *Geckolepis* as the sister group to *Blaesodactylus* + *Homopholis*, with the latter two genera reciprocally monophyletic. Given the clear morphological and biogeographic distinctness of *Homopholis* sensu stricto from *Blaesodactylus*, as well as deep genetic divergence between the two groups, the authors favor the retention of *Blaesodactylus* as the valid generic name for the Madagascan species. *Homopholis mulleri* is confirmed as a valid species, and evidence of cryptic speciation is suggested among divergent samples of *H. walbergii* (often misspelled in the literature), and among samples of *Blaesodactylus* and *Geckolepis*. The pattern observed among South African samples of *H. walbergii* suggests an important role for the Soutpansberg as a barrier to gene flow.

BASKING PATTERNS IN PAINTED TURTLES

M.-A. Carrière et al. [2008, J. Herpetology 42(1):206-209] note that thermoregulation is important for reptiles because it alters the rate of many physiological processes. Thermoregulation may be especially important to reproductive females that inhabit regions where the growing season is short, because the amount of thermal energy experienced during the season may limit the amount of energy devoted to egg production. The authors studied basking behavior of painted turtles (*Chrysemys picta*) in Algonquin Park, Ontario, during the period of follicular recrudescence, a time of year when females allocate energy to developing follicles. Based on the notion that females bask (in part) to increase the amount of energy they allocate to developing follicles, they tested whether basking duration was greater in females than in males. Between 14 and 21 August 2003, it was found that females basked longer than males on three of seven days, but males never basked significantly longer than females. Within sex, male but not female body size was positively related to basking duration. This study suggests that the energetic demands of egg production result in an increased basking duration for females in this northern population. Males may bask to reach a certain temperature then return to water because of potential mating opportunities. Future studies should combine body temperature measurements with behavioral observations to elucidate further the reasons for sex-biased basking.

INDUCED OVIPOSITION IN TURTLES

M. L. Feldman [2007, Chelonian Conservation and Biology 6(2):313-320] from 1978 to 2006, induced oviposition in 13 North American turtle species. Of 245 inductions, 195 used oxytocin alone, 22 used arginine vasotocin (AVT) alone, 13 used a combination of oxytocin and ketamine, 8 combined propranolol and oxytocin, and 7 used propranolol and AVT. For wild *Chrysemys picta picta*, oxytocin-induced eggs were as viable as natural nest eggs. Suggested dosage ranges for oxytocin used alone vary from 0.7 to 4.0 units per 100 g, depending on species. In species where more than 28 animals were injected with the suggested dosage all eggs were oviposited after the first injection between 74% and 82% of the time. With a second injection, all eggs were laid between 83% and 94% of the time. It would be desirable to find a combination of easy-to-use drugs that yielded a higher success rate with the initial injection, especially for species with a history of not responding to oxytocin. Although only small numbers (13 animals) were involved, there was a suggestion that the combination of ketamine and oxytocin may prove more effective than oxytocin alone. A significant adverse effect observed with oxytocin induction was that some successfully induced turtles still displayed nesting behavior over the following days to weeks. This adverse effect might increase the risk of predation or trauma to wild animals after treatment with oxytocin. It might be avoided by using a more physiologic drug combination to induce oviposition rather than oxytocin alone. Natural oviposition is complex and, at least, involves the interaction of peripheral beta-adrenergic neurons, AVT, and prostaglandin $F_{2\alpha}$ (PGF). Other, more physiologic approaches to induce oviposition might be to use a beta-adrenergic blocker with oxytocin or PGF, PGF + oxytocin, PGF + ketamine, or oxytocin + ketamine.

RED-SPOTTED NEWTS ON LAND

A. W. Roe and K. L. Grayson [2008, J. Herpetology 42(1): 22-30] note that the eastern red-spotted newt (*Notophthalmus viridescens*) is one of the most widely distributed salamander species in North America. As with many pond-breeding amphibians, little is known about the terrestrial portion of its life cycle. The authors examined the activities of terrestrial efts and emigrating, postbreeding adults at Mountain Lake Biological Station in Giles County, Virginia, using fluorescent powder tracking. Neither life cycle stage, sex, nor mass affected the distance newts traveled, but emigrating adults traveled in straighter paths than juveniles. Temperature and rainfall affected whether newts emerged from refuge, whereas rainfall and humidity affected the distance traveled of those that emerged. Newts were often found on or close to the surface, using forest debris for cover, and no newts of any stage were observed using subterranean habitat. Thes results indicate that newts are wide-ranging and active in the terrestrial habitat postbreeding. Fluorescent powder tracking was found to be effective in the field for multiday tracking with some limitations caused by weather and distance. These results have implications for the conservation of wide-ranging amphibian species, which may travel long distances from wetlands into terrestrial habitat, outside of protective buffer zones.

NESTING IN TERMITARIA BY ANDROS IGUANAS

C. R. Knapp and A. K. Owens [2008, J. Herpetology 42(1): 46-53] note that nest-site selection and the behavioral mechanisms driving selection have received relatively little attention in nesting ecology studies despite their importance when establishing conservation and management programs for endangered taxa that have obligate habitat-specific nesting requirements. The nesting ecology of *Cyclura cychlura cychlura* was studied on Andros Island, Bahamas, from 2001 to 2004 to elucidate factors influencing nest site selection and address conservation and management implications. Female iguanas predominantly used active *Nasutitermes rippertii* (Termitidae: Isoptera) termite mounds as egg incubation chambers. Nesting females selected mounds with > 5 cm surrounding soil depth and initiated excavation and oviposition in early May. There was no correlation between female body size and termite mound size. Tunnels were excavated into lateral sides of mounds and terminated in nest chambers. Eggs were deposited outside the mound and pushed into the chamber using thrusts of the forelimbs. Mean egg incubation length for the combined 2003 and 2004 seasons was 75.7 days. Temperatures inside the mound were warmer and less variable than corresponding ambient temperatures. Mean hatching success for clutches in monitored nests ranged from 69.9 to 100% from 2002 to 2004. The nesting behavior of *C. cychlura* on Andros most likely reflects the effects of local climatic history and topography on reproductive attributes such as nest success. Elucidating annual female nesting effort, as indicated by active nests, could be an extremely useful indicator to assess both the number of breeding females and, indirectly, the potential for hatchling recruitment.

EFFECTS OF LOGGING ON SALAMANDERS

N. Reichenbach and P. Sattler [2007, J. Herpetology 41(4): 622-629] note that clearcuts have been shown to adversely affect salamander populations, whereas impacts from milder forms of timbering are more variable. They determined the effects of clearcuts and shelterwood cuts on populations of the Peaks of Otter salamander (*Plethodon hubrichti*) using counts of surface active salamanders found during multiple night collections. Sampling was done prior to and then periodically after timbering for 12 yr. Overall, the long-term trends in mean number of *P. hubrichti* at reference and shelterwood cut sites were not significantly different. In contrast, means at clearcut sites declined 41% during the first year posttimbering and then declined over the next three years to a low of 75% below pretimbering means. The means stabilized at 45% below pre-timbering means for the remainder of the study. Immediately after timbering 41% of the salamanders moved from transects established at the edge of clearcuts to reference transects that were 3–9 m away. Clearcuts had less canopy closure and dead leaf cover than reference and shelterwood cuts which likely degraded habitat for salamanders. Therefore, clearcutting forests is not advisable because of adverse impacts on salamanders, but forms of timbering that retain a portion of the forest canopy may be acceptable if it can be shown that the timbering method does not reduce salamander populations.

Advertisements

For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutrtionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, $.17 each; fuzzies, $.24 each; hoppers, $.30 each; weanling, $.42; adult, $.48. Rats: starting with pinks at $.45 each, to XL at $1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. PO Box 85, Alpine TX 79831. Call **toll-free** at (800) 720-0076 or visit our website: < http://www.themousefactory.com> .

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For sale: Graptemys.com T-shirts, 100% cotton, pre-shrunk, pigment-dyed shirts with the Graptemys.com embroidered logo. These are very high quality shirts with that stylish faded look. Sizes S-M-L-XL-XXL. Colors: Pacific blue, nautical red, brick red, plum, granite, khaki green and putty. All profits made from these shirts goes directly to in situ *Graptemys* research. $20 each with $3.00 shipping. Email: chris@graptemys.com or call (239) 437-4148 to order. You can look at the shirts at http://www.graptemys.com/shirts.htm

For sale: Neodesha cages, with 2' dams. Have four 36" with single piece plate glass and aluminum top guide, asking $75 ea. Have six 48" with two piece plate glass and aluminum top guide, asking $180 ea. Never exposed to sunlight. None previously used to house animals. Ben Entwisle, Entwisleassoc@aol.com, (r) 815-838-2871, (o) 815-838-1200, (c) 815-685-2740.

For sale: publications. *Australian Geographic*—the journal of the Australian Geographic Society; each 128-page issue contains a half dozen feature articles on mainly Australian subjects. The articles are written by authorities and are handsomely illustrated with excellent color photos. Also contain book reviews, notes, and ads of interest to people who like things Australian. Each issue has a map, most of which are missing in the ones listed below. Only the herp articles are mentioned: April-June, 1997; "Red-bellied Black Snake" by Rick Shine; 12 pp. on the author's studies and experiences with this snake. April-June, 2004; "Snakes Alive!" by Geordie Tor; 10 pp. on water python studies done at Fogg Dam near Darwin which has the largest biomass of predators (water pythons) and prey (mainly dusky rats) of any area in the world. July-Sept., 1990 - "Sea-snakes" by Harold Heatwole; 14 pp. on Australian species including an account of the author's bite. This issue also has a 19-page article on Kakadu National Park. January-March, 1999; "Funnel-Web Spiders" by Karen McGhee; 16 pp.; comes with a large color poster of the venomous snakes of Australia which is sent folded. April-June, 1992; "The Prince and the Python" by Will Chaffey; 16 pp. on the search for the rare rough-scaled python in the Kimberleys. Mostly about the area, very little on the python which he didn't find. Also a 26-page article on Raine Island , the world's largest nesting area for green turtles. January-March, 2003; "Here be Dragons" by Geordie Tor; 10 pp. on Australia's 2 species of *Hypsilurus*. July-Sept., 2000; "Geckos—The Eyes Have It" by Steve Wilson; 18 pp. on Australian species. July-Sept., 1994; "Rough Character in the Billabong" by Rick Shine; 14 pp. on another of Rick Shine's study animals, the file snake. Also contains 2-page tribute to crocodile researcher Harry Messel. Issues are in excellent condition and are $18 each. *The Biology of the Amphibia* by G. Kingsley Noble, 1954 Dover reprint edition (1931), 577 pp., 174 figs., ex-library with library markings including pocket inside of back cover, text in excellent condition, hardbound, $22; *Snakes of Australia* by Graeme Gow, 1983 revised edition, reprinted 2003, 118 pp., 76 color photos, plastic front and back covers with wrinkles in them, otherwise text and photos in excellent condition, Gow was formerly curator of reptiles at Taronga Zoo and now operates a snake exhibit outside of Darwin, softbound, $23. $2.50 postage and handling for orders under $25, free for orders of $25 or more. William R. Turner, 7395 S. Downing Circle W., Centennial, CO 80122; telephone (303) 795-5128; e-mail: toursbyturner@aol.com.

For sale: Well started spider morph ball pythons (*Python regius*) available for free delivery in the Chicagoland area—males, $350. Also available are high-contrast, Sarawak locality and Walnut × Sarawak pairing Borneo pythons (*Python breitensteini*). Pricing is based on male sex with $50 more for females, if available: 2007 high-contrast, $150; 2007 Sarawak, $175; 2006 Sarawak,$200, 2007 Walnut × Sarawak (melanistic Borneos), $125. All feeding on frozen thawed adult mice and/or rats. Shipping available as an additional cost, if needed. Details and helpful info on my website at www.richcrowleyreptiles.com Contact Rich Crowley at 708-646-4058 or email pogona31@yahoo.com.

For sale: I am continuing to pare down my collection. I am selling my one-year-old male Mandarin ratsnake with a gorgeous darker pattern for $300. Please contact me at (773) 403-4680 or mroconnoDVM@gmail.com if you would like to see pictures or purchase him.

Internship available: The Kentucky Reptile Zoo, a nonprofit organization, is seeking student interns for the 2008 season. The zoo is an educational exhibit, venom production and research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not** be involved in the handling of any venomous species. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Interns are required to be either college students or recent graduates. Former interns have arranged for academic credit with their institutions. Benefits include experience with one of the most extensive and diverse collection of snakes in the United States, housing, and $55/week to cover expenses. Interns have been successful in finding zookeeper positions: over 95% hire rate! Personal transportation is recommended. A valid driver's license is required. Starting dates are flexible, but a minimum of three months covering summer (June-August) or fall (September-November) is required. Deadlines are April 1 for summer and July 1 for fall. To apply, send a cover letter, resume, transcript, and at least 2 (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L&E Railroad, Slade, KY 40376 or email to: reptilezoo@bellsouth.net.

Herp tours: **Madagascar—Tortoise Tour** & **Chameleon Tour** seeking adventurous members for January-February 2009. The goal of the tortoise tour, to be co-led by **Peter Pritchard** of the Chelonian Research Institute and **Bill Love**, will be to see all native species in the wild and record various aspects of their lives photographically. The later chameleon tour, co-led by **Mike Monge** of FL Chams and **Bill Love**, will focus on panther chameleons, trying to find and photograph as many of the color morphs as possible in the wild. Details are at Blue Chameleon Ventures' site at: www.bluechameleon.org.

Herp tours: The beautiful Amazon! Costa Rica from the Atlantic to the Pacific! Esquinas Rainforest Lodge, the Osa Peninsula, Santa Rosa National Park, and a host of other great places to find herps and relax. Remember, you get what you pay for, so go with the best! GreenTracks, Inc. offers the finest from wildlife tours to adventure travel, led by internationally acclaimed herpers and naturalists. Visit our website < http://www.greentracks.com> or call (800) 892-1035, E-mail: info@greentracks.com

Line ads in this publication are run free for CHS members—$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: MADadder0@aol.com

2008 CHS GRANT RECIPIENTS

The CHS Grants Committee has chosen the CHS grant recipients for 2008. The committee consisted of Michael Dloogatch, Jason Hood, Deb Krohn, Linda Malawy, Amy Sullivan and Steve Sullivan. This year we received 19 applications, as usual exceeding the number of grants that could be awarded based on available funds. After a difficult decision process, 12 grants were awarded, in varying amounts, as follows:

- Sarah Becker, Department of Zoology, Southern Illinois University. "Habitat Use and Thermal Niche of Three Panamanian Anuran Species with Varying Degrees of Susceptibility to *Batrachochytrium dendrobatidis*," $500.
- Jake A. Brashears, School of Life Sciences, Arizona State University. "Facultative Thermogenesis in Pythons — How and Why Ectotherms Become Endotherms," $480.
- Meagan Leigh Harless, School of Forest Resources and Environmental Science, Michigan Technological University. "Effects of Road Deicing Chemicals on Larval Amphibians," $250.
- Robert H. Hegna, Department of Biological Sciences, Florida International University. "A Study of Aposematism in the Strawberry Poison Dart Frog (*Oophaga pumilio*): The Effect of Density, Spots, and Color on Predation with Conservation Implications," $400.
- Charles Knapp, Center for Conservation and Research for Endangered Species, Zoological Society of San Diego. "Enhancement of the Green Iguana Conservation Breeding Program at the Iguana Verde Foundation, Costa Rica," $500.
- Eric Liebgold, Department of Biology, University of Virginia. "The Effects of Social Environment on the Growth and Behavioral Phenotype of Juveniles of a Terrestrial Salamander, *Plethodon cinereus*," $300.
- Cy L. Mott, Department of Zoology, Cooperative Wildlife Research Laboratory, Southern Illinois University. "Prevalence and Ecology of Fungal Infections among Breeding Aggregations of Ambystomatid Salamanders in Southern Illinois," $400.
- Peter J. Muelleman, Truman State University. "Assessing *Batrachochytrium dendrobatidis* Infection Levels in the Amphibian Communities in Upland and Lowland Terrestrial and Aquatic Ecosystems of Northern Calhoun County, Illinois," $475.
- Tami S. Ransom, Department of Biology, University of Virginia. "Are the Behavioral Responses of Red-backed Salamanders to an Ecosystem Engineer Influenced by Their Evolutionary History?" $300.
- Michael Reichert, Department of Biological Sciences, University of Missouri. "Character Convergence in Sympatry of Aggressive Calls in Two Frog Species, *Hyla chrysoscelis* and *Hyla versicolor*," $500.
- Tiffany Schriever, Department of Ecology and Evolutionary Biology, University of Toronto at Scarborough. "The Role of Larval Amphibians in Temporary Pond Systems," $500.
- Brooke L. Talley, Department of Zoology, Southern Illinois University. "Surveying Illinois Amphibians for *Batrachochytrium dendrobatidis* Infection," $250.

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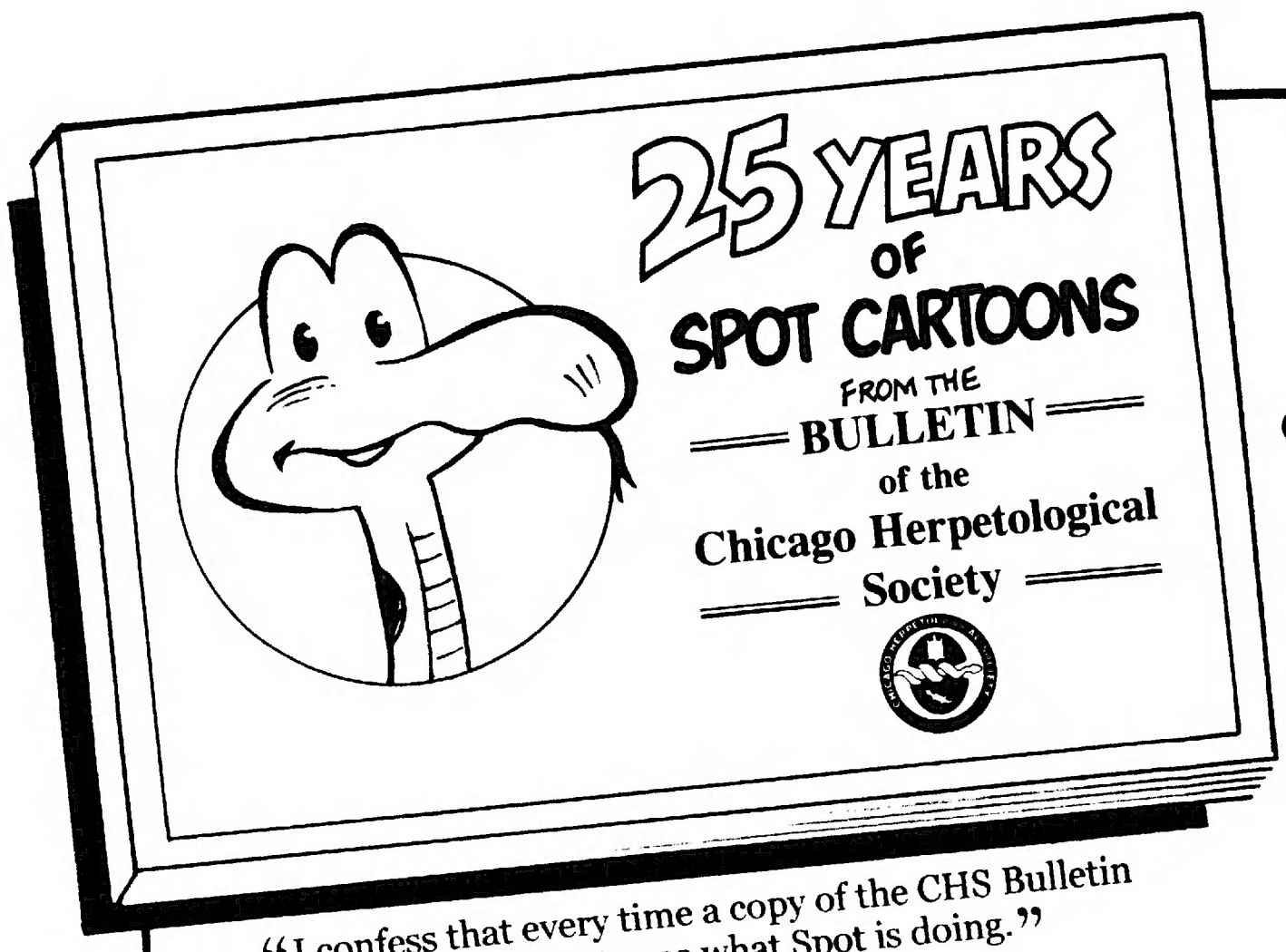

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"I confess that every time a copy of the CHS Bulletin arrives I look first to see what Spot is doing."

Roger Conant

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 26, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Bryan Suson**, head animal keeper at the Lake Forest Wildlife Discovery Center, will speak on "Herps of Ecuador." Bryan spent three months in Ecuador participating in various different projects ranging from frog population studies to an investigation of dung beetle diversity along elevational gradients in the eastern Andes.

At the April 30 meeting **Bill Love** will speak on "Herp Photography—Beyond Snapshots." Bill writes a monthly Q&A column, "Herp Queries," for *Reptiles* magazine. He also leads eco-tours to Madagascar for his own company, Blue Chameleon Ventures. His photographs regularly appear in herp magazines and books.

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the next board meeting, to be held at 7:30 P.M., April 18, in the adult meeting room on the second floor of the Schaumburg Township District Library, 130 S. Roselle Road, Schaumburg.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info visit the CTC website: http://www.geocities.com/~chicagoturtle.

2008 SALAMANDER SAFARI

This year, the annual CHS Salamander Safari will be held on Saturday, March 29, 10 A.M. – 3 P.M., beginning at the Plum Creek Nature Center at Goodenow Grove Forest Preserve in Will County. Goodenow Grove is south of Crete, Illinois, 1¼ miles east of the intersection of Route 1 and Route 394 on Goodenow Road. If you need directions to get to this area, call the nature center at (708) 946-2216. From Plum Creek we will drive to other Forest Preserve District of Will County sites to search for amphibians. Species found or heard calling in previous inventories include spotted salamanders, blue-spotted salamanders, gray treefrogs, spring peepers, chorus frogs, bullfrogs, green frogs, and northern leopard frogs. Species not yet found but possibly occurring (or occurring at preserves nearby) include newts and wood frogs. As in past safaris, CHS members are encouraged to bring interesting amphibians from their personal collections for photography and display purposes. Coffee, juice and donuts will be provided, and a good time will be had by all!

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